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Original Communications

BACK TO THE OLD STANDARD OF ETHICS.*

By PAULUS A. IRVING, M. D., Farmville, Va.
President of Medical Society of Virginia.

Forty years ago I became a member of the Medical Society of Virginia and, to have been elected to the high office of President of this honored organization, is the realization of an ambition that I have cherished for many years and for which I wish to express my high appreciation, while feeling very sensibly my unworthiness when compared with the many distinguished men who have preceded me.

The title of my address is "Back to the Old Standard of Ethics," and, in presenting this subject for your consideration, you, I am sure, will pardon a little ancient, but interesting history—interesting to me because in my early professional life I knew personally many of the distinguished men who were prominent in the organization of the Medical Society of Virginia, and I wish you to know that it was a privilege and an inspiration to have known and enjoyed the association of such a splendid coterie of physicians as graced and adorned the profession of that day.

The Medical Society of Virginia was organized in the city of Richmond, November 2, 1870, in the old Chemical Lecture Room of the Medical College of Virginia, where ninety-two (92) physicians from different sections of the State, principally from Richmond, Norfolk, Lynchburg, Petersburg and Staunton, assembled for this purpose. From an examination of this list of ninety-two, I find only two that are now living, viz: Drs. E. J. Moseley and J. N. Upshur, both of Richmond.

Dr. James B. McCaw, of Richmond, presided over the meeting as chairman. Dr. McCaw was my old professor—I vividly recall him, a tall, erect, stately, commanding figure, charming in manner, elegant in address and diction—a real chevalier; a man of strong personality; one who would attract and command attention in any assemblage; graceful in speech, a charming conversationalist; a man of high honor and integrity who never compromised a principle.

The Society perfected its organization by the election of Dr. R. S. Payne, of Lynchburg, as its President, a man of the Old School, such as is described by Ian McLaren. There were several notable Vice-Presidents, viz.: Drs. J. S. Wellford, of Richmond; John Staige Davis, of the University of Virginia; Wm. Selden, of Norfolk; T. E. Brown of Alexandria; V. T. Churchman, of Augusta County, and Hugh McGuire, of Winchester. What a galaxy of names! What they represented in the profession and stood for in their respective communities is difficult to find words to express. Dr. Hugh McGuire, father of our late Dr. Hunter McGuire, one of the three most distinguished physicians and surgeons in the State, representing the Valley; Dr. Rawley White of Chatham, uncle of our late esteemed and beloved Dr. Rawley White Martin, representing the South Piedmont Section, and Dr. John Peter Mettauer, of Worsham, Prince Edward County, representing the Southside; these men were known far and wide, enjoyed a large clientele from Virginia and adjoining states, did a splendid work and service, and further, did advanced surgery for that day and time, many of their appliances and instruments being made at the country blacksmith's anvil. I never saw any of these save Dr. Mettauer, who, possibly, was the most distinguished and most widely known. He, for a few years, filled the chair of surgery in the University of Maryland, but he did not like city life so came back to his home in Virginia. His was a striking figure. A man of commanding presence, of many and peculiar idiosyncrasies, a most

*Presidential address before the fifty-first annual meeting of Medical Society of Virginia, in Petersburg, October 26-29, 1920.

unique character. He always wore a high hat which he rarely removed from his head—in the crown of which he carried several catheters! Diseases of the bladder was his specialty, his favorite treatment or prescription for this trouble being an injection of 20 to 30 grains of nitrate of silver to the ounce. His usual treatment for hemorrhoids and fissure-in-ano was a piece of brimstone trimmed cone-shaped, with which he would forcibly dilate the sphincter, stretch the rectum, get in his carriage and, like Jehu, drive hastily away. He operated for everything—cataracts, etc.—without an anesthetic.

Landon B. Edwards, then of Lynchburg, was secretary of the first meeting, and was continuously elected to this office from 1870 to November, 1910—save one year, 1883, when he was defeated by a faction, his friends not being aware that a fight would be made against him. He was easily elected the following year, 1884, and continued in this office without opposition until November, 1910, serving 39 years, when he died, beloved and honored by the entire profession of the State. Dr. Edwards was a native of Prince Edward County. So highly was he revered and esteemed by the Medical Society of Virginia, to which he almost gave his life work, often spending his own money to advance its interests, that at a meeting of the Society held in Roanoke, October, 1909, the last meeting of the Society he attended, when it was evident that he could not last many months, a purse, or rather a bag of gold, containing a thousand dollars was presented to him as a testimony of their love and affection. I promulgated this movement and was largely responsible in raising this testimonial to my old friend, to whom I was greatly attached.

The Medical Society of Virginia has continued to meet every year since then, gradually increasing in strength, membership and influence, until now we have over 1800 members—the largest medical society in any state in proportion to the medical population, there being from 2300 to 2400 physicians in the State of Virginia, the membership changing each year by deaths and removals. The Medical Society of Virginia is responsible for all of the advances and reforms thrown around the profession in Virginia today.

In 1871, at the second meeting, in Lynchburg, the State Society passed a resolution calling upon the legislature to establish a State Board of Health, which law was passed in 1872, but since the act carried no appropriation, it was practically null and void. By persistent efforts, however, and the influence of the Society, in 1892-93 a State Board of Health was established with simply enough appropriation to begin a campaign of education and to keep the subject before the people and the profession, the appropriation being at first $1,000.00 and afterwards raised to $2,000.00. The State Board of Health was again the consideration of the legislature in 1907-08 and was then put on a substantial basis by an appropriation of $40,000.00 per annum, and is now doing a splendid work in preventive medicine.

In 1874 the question of establishing a Medical Examining Board was discussed, but it was not until 1885 that this board was established, which since that time has accomplished a great work in raising the standards in academic institutions and in medical colleges, thus enabling us to keep out of our State, charlatans, quacks and irregulars. Up to this date, 1885, anyone who declared himself a doctor, whether he possessed a diploma or not, and paid his license fee, could practice medicine in Virginia. Such a law was imperatively necessitated by the fact that Virginia was fast becoming the dumping ground of other states where irregulars were being forced out by higher standards and requirements.

The law for the higher education of the druggist originated in our State Society and a few years later the Pharmacy Board was established at the suggestion of this society, throwing the safeguards we have today around the dispensing of medicines. Advances in medical education along all lines—lengthening of the terms of medical colleges, more rigid entrance requirements, increase in laboratory facilities and equipment, and better regulated hospitals for clinical instruction, all are due to the influence of the Medical Society of Virginia. Today a diploma is worth 50% more than when I graduated. In my day, a one year course of nine months or a two year course of six (6) months each, was the term, with but little laboratory and few hospital facilities or requirements. A young doctor entering upon his work at this time is much better furnished and equipped for his work from laboratory, clinical and hospital standards, and should deem himself exceedingly fortunate in enjoying such facilities, privileges and advantages.

I shall never forget how helpless and at sea I felt when I first began my career as a doctor without having had any bedside instruction!

The repeal of the license tax on doctors, so recently accomplished, and other reforms which the scope of this address will not permit me to dwell upon, were all brought about by the influence of the State Society. The men who organized the State Society in 1870 were not laggards, but were abreast of the times in advanced ideas and thought, hence our organization has not lived in vain, but has accomplished a great deal—not forgetting the scientific work done and the delightful social life mingled with it, which in itself is a source of great pleasure and relaxation to the busy doctor.

In order to build up and maintain a live State Medical Society it is essential to have district and county organizations.

County Society.

It is difficult to estimate the value of a wide-awake county society. There is no limit to its possiblities if each member will do his duty to himself and to his brother practitioners. It gives its members a time and place to meet and discuss the current medical topics of the day. It brings out the *good* that is in us; it strengthens and develops friendships and brotherly love for, as so well said by another "Sympathy and understanding unite men." It stimulates its members to more earnest study; it prevents us from getting into ruts; it enables us to keep up with the advances in medical literature; it makes better doctors of us all. It makes us more liberal and less critical in our judgment of others. Contact and association bring about closer relations—make us more charitable in the views and opinions of our fellow-man and brother practitioner.

Have you had a kindness shown?
Pass it on.
'Twas not given for thee alone,
Pass it on.
Let it travel down the years,
Let it dry another's tears,
'Till in heaven the deed appears,
Pass it on.

Did you hear the loving word?
Pass it on.
Like the singing of a bird?
Pass it on.
Let its music live and grow,
Let it cheer another's woe,
You have reaped where others sow,
Pass it on.

It has been said that a medical society should be like a big family in which each one is to help elevate and advance the other. If each member would strive to establish such a relationship, the meetings would *mean* a great deal to each member. We must help our fellow-members; we must try to elevate our brother to a high standard of personal and professional life; we must endeavor to do some good each day that we live. We must lend a helping hand to the professional brother who is in trouble, whether financial, professional or personal, for we never know what a day may bring forth. This suggests a poem, entitled—"As To You."

Did you give him a lift? He's a brother man
And bearing about all the burden he can.
Did you give him a smile? He was downcast and blue
And the smile would have helped him to battle it through.
Did you give him your hand? He was slipping down hill
And the world, so I fancied, was using him ill.
Did you give him a word; did you show him the road;
Or did you just let him go on with his load?

Did you help him along? He's a toiler like you,
But the grasp of your hand might have carried him through.
Did you bid him good cheer? Just a word and a smile
Were what he most needed that last weary mile.
Do you know what he bore in that burden of cares
That is every man's load and that sympathy shares;
Did you try to find out what he needed from you,
Or did you leave him to battle it through?

Don't you know it's the part of a brother of man
To find what the grief is and to help when you can?
Did you stop when he asked you to give him a lift,
Or were you so busy you left him to shift?
Oh, I know what you say may be true,
But the test of your manhood is, What did you do?
Did you reach out your hand? Did you find him the road?
Or did you just let him go on with his load?

The following has been well expressed by a layman:

"You doctors are the dearest people on earth and we love every hair of your heads as individuals, but as a class you are *pitiable!* You spend your time and money and energy organizing and maintaining scientific societies for the advancement of science and the betterment of mankind and you do *not know* anything about the law of self-preservation.

"Go home and organize."

Ethics.

I desire to give you my ideas of the ethical phase of our work from the viewpoint of one

who has been in practice many years. I recognize that it is easy to moralize—yea, easy to give advice.

What is Ethics? How would you define it? Ethics has been stated to mean, "The science that treats of human actions from the standpoint of right and wrong." It should teach you how to perform the duties of life, what you should do and what you should not do, viewing the duties and obligations of your profession from a high moral plane rather than from a sordid, commercial one. Remember, my friends, that you belong to a time-honored, noble profession, not a trade union or a commercial organization. A splendid type of manhood has graced and honored the medical profession in the past and we should see to it that the standards are not lowered and that the flag of the covenant does not trail.

Ethics embodies the rule of conduct that should guide the physician in the pursuit of his calling, not only in relation to his brother practitioner, but to the patient and public as well. Bear in mind that Ethics and Etiquette are not synonymous terms. Ethics refers to the rule and guide of a physician's life, personal, moral and professional, while Etiquette refers rather to the forms and conventions that he should ordinarily observe.

According to Professor Robert Saundry, of Birmingham, England, "There are three principles which may be regarded as the cornerstone of medical ethics:

"First: In the relation of the medical practitioner to his colleagues; he should obey the Golden Rule which teaches that 'Whatsoever ye would that men should do to you, do ye even so to them.' (St. Mathew, 8:12.)

"Second: In his relation to his patients: their interest should be his highest consideration—'Aegrati salus suprema lex.' (The welfare of the patient is the supreme law.)

"Third: In his relation to the state, to the laws of his country and his civic duties, there is, again, no better guiding principle than the words of the Gospel, 'Render, therefore, unto Caesar the things which are Caesar's and unto God the things which are God's.' (St. Luke, 20:25.)"

In my opinion, much good could be accomplished if a series of lectures embodying the principles of ethics were given in every medical college in the land, for many of our young graduates leave school without ever having had these questions brought to their attention or impressed upon them, and begin their life work without having given this phase of their work and conduct any consideration whatsoever. Is it any wonder, then, that commercialism takes entire possession of many of them? "Jealousy, that green-eyed monster, would be driven into his Plutonian lair were ethics taught in our medical schools as are some less important subjects."

The Responsibility of the Physician.

The Medical Profession is an exacting mistress. It is very difficult, yea almost impossible, if you attain success as a physician, to do anything else or to follow any other pursuit or calling, for you should always be on hand and alert to respond to the calls of the sick and suffering. You should always remember that the health, the comfort and the welfare of the sick are entrusted to your care and you should realize fully the responsibility of your calling, and your position in the community in which you reside, for a great deal depends on your skill, your attention and fidelity to your work, yea, often, the very life of some individual. Remember further that when you take charge of a case, you should give it the best service that is in you, whether there is remuneration in it or not—whether it is a pay case or a charity case. Do not neglect your work, for, when you are sent for and assume charge of a patient, you thereby prevent some other physician from looking after this poor, suffering being, hence every case should be looked after and treated with careful, painstaking attention and assiduity, remembering that you have no right to take charge of a case unless you are going to give it every necessary service and attention.

Frequency of Visits.

You should see your patient as often as necessary for a proper understanding of the case, keeping yourself informed as to the progress of the case or changes in symptoms that sometimes occur. Do not, however, make unnecessary visits but go as frequently as in your judgment it is necessary for the proper management of the same. This I would insist upon and demand as a right and a privilege when I assume charge of a case. Because a case is incurable, do not cease your visits. Go as often as you can and as is necessary. Do what you can to alleviate the suffering and pain

of both mind and body, cheering the faltering, flagging spirits by a cheerful, bright personality, but do not give false hopes. Cultivate a cheerful, bright, happy temperament and disposition. Make yourself pleasant and agreeable in the sick-room, especially when the time and occasion justify it, but do not lose your dignity. There are times, though, when levity is out of place or is grating on the patient and friends.

"The Test of the Heart."

It is easy enough to be pleasant when life flows
along like a song,
But the man worth while is the man who can smile
When everything goes dead wrong.

For the test of the heart is trouble, and it always
comes with the years,
And the smile that comes with the praises of earth
Is the smile that shines through tears.

Secrecy.

Preserve inviolate the secrets of the families in which you practice. What occurs in the sick-room, at the bedside or in your office in conference with a patient should be as secret as the Confessional. No infirmity, habit, frailty, trouble, misfortune or weakness that comes to your notice in a professional way should be divulged. Learn to forget these things. Do not talk about them to your most intimate friends or associates. Observe this rule and it will soon become a habit and you will find that it will be better for you and your patients as well. You should protect and guard the honor of the family circle and the good name of your patients as you would that of your own family, with scrupulous fidelity and integrity. You should endeavor to save the feelings of every home you enter.

Advice to Patients—Abortions, etc.

Never lose an opportunity to warn patients and friends against wrong doing, such as self-abuse, seeking to have abortions produced, etc. Do not allow yourself to be persuaded or beguiled into aiding or abetting anyone in committing an abortion from sympathy or monetary considerations. First, because it is not right—being a violation of the laws of God and man and it should be of your own conscience. Stand fast and be brave. If you are weak enough to yield once to such importunities you will yield again and you will soon get the reputation of being an abortionist and, before you realize it, you will be in the hands of the law.

Let me caution and warn you also not to yield to the intrigues and designs of any voluptuous woman, especially if she is a patient. It may be the weakness of the moment and you should not take advantage of this weakness. She may be the wife or daughter of one who has faith in your honor and who has trusted you to enter his home, and she may be one whom you should protect rather than disgrace. Should you yield, you will never cease to regret it as long as you live, whether it ends in harm or not. It will embarrass you in a business way and you will forever have a guilty conscience, unless it is already seared by often repeated seances of such a life. Nothing will so lower you in your own estimation or that of your friends, as leading the life of a roue. This always gets out in time and will follow you wherever you go.

Duty and Relation of Physicians to Each Other.

Each of you, my friends, should remember the Hipocratic Oath. Get a copy of it; memorize it and adhere to its precepts and principles.

You should remember that you are obliged to uphold the honor and dignity of the profession by a pure, honorable life, temperate habits and high professional attainments for, as you advance in professional years, the younger members of the profession will be watching your mode of life and habits and you may be the means of uplifting someone if you maintain a high and proper standard of personal and professional bearing. This unquestionably, has its silent influence. Do not for a moment think that you can set at defiance the rules and regulations that govern the profession in your city, town or cummunity. Do not undertake to set at naught the traditions and customs that prevail as to professional conduct, fees, etc., that have governed the profession for years past. If you attempt to do this you will get the better element of the profession down on you, and you cannot afford to do that. No one man is big enough or brainy enough to do this, however influential he may be, and the young physician especially cannot succeed without the good will of his fellow physicians.

When you enter a field, endeavor to affiliate and be on friendly terms with all the members of your fraternity. Cultivate them socially and professionally. Join their societies and

organizations as soon as invited and affiliate with them in every way. Be one of the band; then the good men, the honorable, high-minded physicians will give you the glad hand and will aid you when possible in every way.

Do not undertake to advertise by short cuts or any underhand methods, or by newspaper advertisements or printed cards. The very best advertisement a doctor can have is duty well performed by strict attention to business. Be in place and at the call of the sick always—respond promptly to all calls. Give every case that comes under your care the best service that is in you. Be equipped with the proper armamentarium in the way of instruments, appliances and medicines for your work. It will soon be communicated from one family to another that Doctor — knows his business and attends to it. This will also be recognized by your professional brethren, who, when they want efficient help, will send for you. The old doctor may not be skilled with the microscope, blood count, blood examinations, stomach analysis, etc. You can greatly aid him by these modern methods of determining a diagnosis. Physicans are mutually dependent one upon the other. Always be ready to come to the aid of a brother physician when he is in trouble and needs assistance, by giving an anesthetic or aiding him in difficult cases. Respond promptly when sent for to a physician or any of his household. Attend to them as you would one of your best paying patients. The physician will be grateful and will return this courtesy in kind, directly or indirectly. This service, of course, should be without charge.

When called to attend to another physician's practice, either during his absence or when he is disqualified by sickness or otherwise, do it willingly and graciously and never do or say anything by word, deed, shrug of the shoulder, innuendo or silence, to discredit or reflect on him. This is not right. It is low, mean and contemptible. Attend to the patient as you would your own. Do not change or alter the prescriptions, unless necessary but, when the exigencies of the case and the change in the symptoms require it, do so unhesitatingly and, when you turn the case over to him, which you should do on his return to his work, give your reasons for so doing. Do not hold on to the case even if asked to do so—which is often done—for you may make a pleasant impression on some of them, but do not allow yourself under any circumstances to be persuaded to continue in charge of any of these cases at this time; give them up to the attending physician. If you should so impress any of these patients by your skill and ability that they should afterwards send for you in another and different sickness, why, respond. People have a right to change and will do it. This you cannot help. They have their rights as well as we physicians have our rights. If the doctor were a friend of mine, I should call him up if possible before responding to the call and tell him that I had been called to see Mrs. —. He can but say go. If the patient calls to see you at your office prescribe for her and ask no questions—she is going to leave the other physician so you had as well take the case. This course is perfectly legitimate and right.

Consultations.

Do not hesitate to ask for consultation when you have a serious case. Do it, if possible, before it is suggested by the family but, should they ask it, always agree to it. Especially should you ask for a competent consultant if the diagnosis is not clear, and it is a serious or difficult case. The sick person, as well as the friends, are entitled to consultation. Consultations should be encouraged; they should contribute to enlarged views and good fellowship. Be prompt on the hour and appointed time; the other physician may have engagements and cannot wait. Be frank and candid in a consultation. "No insincerity, rivalry or envy should be indulged in; candor, probity and all due respect should be observed". The directions and treatment of the case should be given and stated by the physician in charge but, if the consultant is asked to express his views, he should do so candidly and clearly without evasions. What occurs in the consultation room should be private and not divulged by the consultant, especially. All consultations should be private, not in the presence of the family or friends, but where a free interchange of opinions and views can be held without reserve. The attending physician can vary treatment but the consultant should not do this save when necessary or in an emergency. In a consultation, if there is a conflict of opinion and views as to treatment, which cannot be adjusted, the consultant should either retire from the case or a third physician be called in. The consultant should never wantonly expose

the errors, mistakes or ignorance of the attending physician. Sometimes this has to be brought out, but it usually can be done in a way so as not to hurt the feelings of the attending physician or excite the suspicions of the family or reflect on him in any way. Guard and cover up his mistakes when it can be done without detriment to the patient or to principle. You may be in a similar situation some day, yourself. We all make mistakes and errors, not only of omission but of commission, so be charitable.

Respond to all emergency cases. If the patient has a regular physician, do what you can to relieve the patient, then suggest that they send for the family physician and, unless he arrives before you leave, leave a note saying what you have done. Accept a fee for this emergency service unless there is some good reason for your not doing so. Always avoid criticising what has been done by another physician. If you cannot sanction or approve, say nothing, or ask to be excused from expressing an opinion. Be honest and straightforward in your relations with the attending physician and family.

Compensation.

Gratuitous service should sometimes be given. Always observe free bills. Never undercharge. Do not give or take commissions.

Ideals.

The doctor who has a true conception of his calling should have ideals.

The ideals of a Doctor of Medicine should be high, lofty, sublime. He should be filled with ambition to excel, certainly to be the equal of any of his associates and colleagues. He should be a well-rounded character. He should possess attributes of a high order. He should be moderate in all of his appetites. He, above all other men, should be honest and straightforward in all of his dealings with his patients, his brother practitioner and his fellowman. He should be a man of broad, liberal education and culture. He should be a leader in the community for good works, and better still, he should be a follower and believer in the meek and lowly "Nazarene." He should have a heart as well as a head. Many factors, my friends, enter into the make-up of a well-rounded physician. He should not pursue his calling mechanically, but he should enter upon his work with zeal, with energy, with assiduity, with spirit, with interest, not simply for what he expects to get out of it, but with an eye single to the welfare of the lives committed to his care. It is true the laborer is worthy of his hire, so he should conduct the business part of his profession on business principles.

Remember, though, that your chief mission is to soothe the fevered brow, to quiet the restless raving of the tired and weary brain, to restore confidence to the depressed and failing spirits, to gladden the heart of the young mother by placing in her arms and to her breast her first-born, thus causing her to forget the toil, the anguish and the pain through which she has just passed, and causing a new love and sympathy to well within her heart and to enter her soul, that has never filled it before. The love of a mother for her child is stronger and far surpasses that of any human love, feeling or attachment, and any man who proves false and recreant to this love and dishonors the name of the sweet woman who nurtured him at her breast, should be trampled under the foot of man and driven from the face of the earth. Mother! It is the sweetest name that can pass the lips of man.

It has been said that every mother gets well paid for all the prayers she offers and the tears she sheds in behalf of her children. I do not know that this is true—would that it were. Show me a man, though, who has attained success in any of the professions, in commercial life or in any walk of life, as a rule his success is due to the sweet influence of a Christian home and every step in life he takes is an echo of joy to that dear old mother's heart, who taught him at her knee his infant prayer.

I do not know that you could do better than to adopt as the guide of your life the Golden Rule, "Do unto others as you would that they should do unto you." These few words embody, in my judgment, all the rules and regulations necessary for the guidance of your professional life, and if you will follow them, you will never go wrong. To you, my friends, let me urge that your ideals be high. Endeavor to help your fellowman and to do some good each day as you pass along life's pathway.

"But Once."

"I shall pass through this world but once: any good that I can do or any kindness that I can show to any human being, let me do it

now. Let me not defer nor neglect it for I shall not pass this way again."

Strive to elevate your professional brother with whom you associate and come in contact by an unselfish example for the truth and the right always. By so doing you wlll put your profession on a higher and nobler plane and thus realize its responsibilities and opportunities yourself. To paraphrase one of Dr. Van Dyke's most striking epigrams, "The True Measure of Life":

"We live in deeds, not years, in thoughts not in breath;
In feelings, not in figures on the dial.
We should count time by heart throbs when they beat,
For God, for man, for duty."

"He most lives
Who thinks most, feels noblest, acts the best.
Life is but a means unto an end, that end,
Beginning, mean, and end to all things, God."

Let us make the world better by our example and life. Let us strive to uphold the honor, the dignity and the traditions of our noble profession and follow in the footsteps of the splendid type of men and physicians who have preceded us, who have passed over the river; who have been gathered to their fathers and who are now resting under the trees in a glorified faith.

When our work is done may each of us enter upon a higher, nobler life, prepared for those who walk uprightly and fear God.

ACUTE NON-TUBERCULOUS INFECTIONS OF THE LUNGS AND PLEURA. (Etiology and Pathology).*

By F. C. RINKER, M. D., Norfolk, Va.

Acute respiratory infections have assumed a place of first importance in medicine on account of the pandemics of the past two years.

In order to well understand the etiology of acute infections of the lungs and pleura, we must bear in mind first the microscopical anatomy of the lungs including the blood and lymph supply. To review briefly the anatomy of the lung I can do no better than call your attention to the recent work done on this subject by W. S. Miller.

Miller has divided the anatomical structure of the lung into Primary and Secondary lobules as follows: "If the bronchial tree be followed to its ultimate divisions, a point will be reached where the bronchi are no longer of a regular outline but the have here and there small spaces (*Alveoli*) opening into their lumen; such bronchi are termed *bronchioli respiratorii.* Each bronchiolus respiratorius divides into branches which have a still greater number of alveoli connected with them—the *ductuli alveolares.* Each ductulus alveolaris is connected with a variable number of irregularly spherical spaces, the *Atria*, which also possess alveoli. With each Atrium there are a number (2-5) of *Sacculi alveolares* which bear on all parts of their circumference alveoli—the *alveoli pulmonum.*" He calls the ductulus alveolaris and the air spaces connected with it *The Primary Lobule.* This section or unit of the lung receives a net work of lymphatics and blood vessels, both nutrient and functional. A number (50-200) of these primary units go to make up a Secondary Lobule which is enclosed between fibrous or elastic tissue septa and a number of these secondary lobules go to make up the lobes of the lungs.

With such minute histology, so richly supplied by blood and lymph streams and in a sense open to the outside world, we can readily appreciate how bacteria may reach the parenchyma of the lung through: (1) air passages, (2) blood stream, (3) lymph stream, and it is easily seen that such infection may result in pathological processes of varying structure and intensity.

Recent experiences have awakened us to the importance of thorough study and consideration of non-tuberculous lung affections.

Acute non-tuberculous infections of the lungs may be divided into the following groups:

1—Lobar pneumonia,
2—Broncho-pneumonia,
3—Metastatic pneumonia or infarct.
4—Luetic pneumonia.

Etiology.

Predisposing Causes are: Exposure to extreme weather changes; trauma to the chest wall; contact with infected individuals, and, most particularly, inflammations elsewhere in the body, such as: upper respiratory infections, typhoid fever, meningitis, infected wounds on the surface of the body, etc.

Causative Agents are: The pneumococcus-streptococcus group; the Friedlaender bacil-

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lus; the influenza bacillus; the colon bacillus; the typhoid bacillus and the spirochaeta pallidum. Pneumonia is also rarely caused by actinomycosis, glanders bacillus, blastomycosis, etc. These infections are too rare to be considered here.

Barker says the pneumonias are caused by one or more of the different types of the pneumococcus (as described by Cole); the streptococcus; the Friedlaender bacillus, the staphylococcus; and occasionally by the influenza bacillus; the colon bacillus, etc. He speaks of broncho-pneumonia as being secondary to a descending form of bronchitis. He also describes metastatic pneumonia as resulting from septic emboli arriving through the pulmonary artery.

Chickering, in studies at the Rockefeller Institute, found: *First*, that lobar pneumonia almost always results from the infection of the different types of disease producing pneumococci, and *second*, that secondary pneumonias result from a great variety of organisms as: the pneumococcus, the streptococcus, the influenza bacillus, and others. He believes that these organisms find entrance through disease conditions in the upper air passages.

Goodpasture believes that influenza is due to an unknown virus and that the organisms causing pneumonia in these cases are secondary invaders.

Birge and Harris place the blame of the pneumonias, during the recent influenza epidemics, on the hemolytic streptococcus.

Kotz studied material from 30 lungs of patients dying from influenza pneumonia and found the influenza bacillus in 15, the pneumococcus in 27, a small diplococcus forming chains in 14, and the streptococcus in 8.

Hurley concludes that it has not been established that the Pfeiffer bacillus plays either a causative or contributory role in producing pneumonia. He believes that the influenza bacillus may prepare the soil for the invasion of the streptococcus and the pneumococcus, and says the latter seem to be the organisms responsible for the deaths.

Brown and *Palfrey* found that either the streptococcus or the pneumococcus or both were present in a large proportion of cultures made from cases of influenza pneumonia. They found type I pneumococcus in 25.5 per cent. of cases studied, type II in 17.1 per cent, type III in 19.1 per cent, type IV in 22.7 per cent, more than one type in 9.3 per cent, and undetermined including the streptococcus in 6.3 per cent.

Mac Callum states that no one causative agent for influenza has been found, but whatever it is, it greatly lowers resistance to bacterial invasion and, therefore, may be complicated by pneumonia caused by any of a series of organisms such as: the streptococcus, the pneumococcus, etc.

Nuzum, *Stengel*, *Pilot* and *Bonar*, in studying influenza cases, found hemolytic streptococci in 20 per cent of washed sputa and in 4 per cent from cultures made from the nasopharynx. In 36 necropsies they found it in 43 per cent in the lungs and 8 times in the heart's blood. They conclude that this data would indicate that the hemolytic streptococcus was a secondary invader in influenzal cases.

Keegan also regards the streptococcus as a secondary invader.

Davis believes that the streptococcus was a secondary invader in the pandemic of 1918 and points to the probability of its gaining entrance through the tonsillar crypts.

In this review of the literature, it is fairly generally agreed that the most frequent causative agents of lung inflammations, not tubercular, are: the pneumococcus-streptococcus group and, in the recent pandemics these two organisms, in one or more of their strains, were secondary invaders causing the pneumonia after the influenza bacillus had paved the way by lowering local and general resistance and preparing a more fertile soil for the invasion of other bacteria.

Acute Syphilitic lung infection is worthy of mention here because of its similarity to tuberculosis, clinically. It was once thought that syphilis only attacked the lung in the tertiary stages. This view still holds good in regard to the parenchyma of the lung, but syphilis may attack the bronchi and peribronchial tissues very shortly after the appearance of the primary lesion. This type has been called Pulmonary Syphiloma by Dieulafoy. The author has recently seen such a case which had been diagnosed acute tuberculosis, the case having a four plus Wassermann reaction, and having a negative sputum with negative Roentgen findings for tuberculosis and recovering very rapidly following antisyphilitic treatment.

AVENUES OF INVASION: In all cases of lung infections some infecting agent is conveyed to the lung by one of three routes: (1) from the upper respiratory passages or external world through the bronchi (air-borne invasion); (2) from infectious processes in the upper respiratory tract or elsewhere in or on the surface of the body through the blood stream (blood-borne invasion); or (3) from infections involving the adenoid tissues through the lymphatic channels (lymph-borne invasion).

It is the author's opinion that many if not all of the acute infectious processes in the lungs and pleura result as secondary infections from some primary focus in the open avenues or from some focus existing on the surface of the body through the medium of the blood or lymph streams.

Keeler speaks of the possibility of hemostatic infections of the lungs from nasal infections.

PATHOLOGY.

From a pathological view-point, acute, non-tuberculous infections of the lungs can best be discussed under the separate divisions:

1. LOBAR-PNEUMONIA. Since the time of Laennec, pathologists have recognized three stages of pathology in the course of this disease—(a) Engorgement, (b) Red Hepatization, (c) Gray Hepatization or Resolution. The pathology of these three stages is so well known to us all that it is not deemed necessary to discuss them in detail here.

2. BRONCHO-PNEUMONIA or CROUPOUS PNEUMONIA has attained a position of priority among other acute lung infections as a result of recent pandemics affecting the respiratory tract in general.

Osler divides this type of pneumonia into three forms pathologically. (1) Those cases in which the bronchitis and alveolitis is most marked and in which there may be no definite consolidation, (2) The disseminated pneumonias in which there are scattered areas of peribronchial hepatizaton with patches of collapse of the lung tissue while a considerable portion of the lobe is still crepitant, and (3) The pseudo-lobar form, in which the greater portion of the lobe is consolidated but not uniformly.

The recent-day cases of broncho-pneumonia probably more closely simulate the second class of cases as designated by Osler.

Mac Callum, in discussing the pathology of broncho-pneumonia following influenza, states that the pathology differs with the type of the infecting organism. (1) When caused by the pneumococcus the pleura is dull, there is little fibrin, there are brick red patches or small elevated gray flecks on the cut surface of the lung, the bronchi are not conspicuous and the septa not prominent; (2) When the causative agent is the streptococcus he finds the same picture of morbid anatomy except the bronchial walls are thicker and more prominent; (3) When caused by the influenza bacillus there is no great pleural exudate, the bronchi exude yellow pus and the cut section shows shot-like gray patches on the surface.

Le Count, in describing the pathology of influenza pneumonia, was impressed with the small amount of undistensible lung. On section he found a wet, velvety, non-granular appearance like the cut section of skeletal muscle. He describes an enormous amount of sero-sanguineous exudate in the bronchi and found an abundance of similar fluid in the subpleural lymph spaces. He found no visible details of alveolar markings through these opaque and brown areas. The bronchioles were congested and filled with bloody froth.

Lyon, in describing the gross pathology of influenza pneumonia, speaks of it as a hemorrhagic pneumonitis with characteristic intense pulmonary congestion. He also found an abundant amount of sero-sanguineous fluid in the alveoli (most marked at the bases), small areas of emphysema in the involved lobes, and speaks of the similarity of the lesion to a terminal congestive process.

Luke, Wight and *Kime* describe the morbid anatomy of influenza pneumonia as a lobular pneumonia with a tendency to become pseudo-lobular and with a mixed smooth and granular cut surface.

Polettine carried out 50 necropsies on influenza pneumonia cases and concluded that the lesions are characterized by confluent bilateral hemorrhagic broncho-pneumonia involving chiefly the bases.

Walker speaks of influenza-pneumonia as a hemorrhagic lesion, interstitial, nodular or massive in extent, arising from a pulmonary, capillary phlebitis with disseminated capillary necrosis due to some toxic agent and resulting in secondary purulent pneumonia with healing by organization.

In reviewing the literature further, it is quite generally agreed that the influenza epidemic resulted in a broncho type of pneumonia, which may be described as a hemorrhagic pneumonitis with serosanguineous exudate in the bronchi and alveoli and that the pneumonic process was probably caused by secondary invaders such as one or more of the types of the pneumococci or streptococci.

SYPHILIS OF THE LUNGS.

Osler describes syphilis of the lungs as being rare, and says its pathology is that of a sclerotic process advancing sometimes from the pleura but more commonly from the root of the lung. It rarely involves more than a portion of a lobe. The bronchi are dilated in the involved area.

Dieulafoy described it as a number of nodules of broncho-pneumonia in various stages (catarrhal, fibrinous, caseous) the lesions being grouped around a bronchus. The mass is composed of alveoli filled with cells and appears to be undergoing fatty degeneration.

PLEURA.

THE ETIOLOGY of acute non-tuberculous infections of the Pleura differs none from the etiology of the acute lung infections as described above.

THE AVENUES OF INVASION are: (1) By metastasis through the blood or lymph streams from foci of infection in other parts of the body or on the surface of the body.

(2) By extension to the pleural surface of inflammations in the lungs.

(3) By perforations from abscess formations existing in neighboring organs as liver, pericardium, etc.

(4) By stab or puncture wounds of the chest wall, met with frequently during the recent war.

Many authors state that acute inflammations of the pleura, coming on in the absence of lung infections or wounds perforating the chest wall, are in the large majority of cases due to tubercular infection. The writer from past experience has to differ from this view. On the other hand he is of the opinion that the majority of so-called primary pleural infections result from metastasis from acute or chronic foci existing in the upper respiratory tract or from primary infectious processes in other parts of or on the surface of the body.

THE PATHOLOGY of acute inflammations of the pleura may be divided as follows:

(1) Dry pleurisy or pleuritis sicca.

(2) Pleurisy with effusion or pleuritis exudativa.

This division may be subdivided into serous, serofibrinous, hemorrhagic, or purulent, according to the character of the exudate.

In the first division there is congestion of the two pleural surfaces which are covered with a fibrinous membrane. The serosa is infiltrated with leukocytes, the blood vessels are dilated, and the lymphatics are packed with white corpuscles.

Pleurisy with effusion is an inflammation of the pleura associated with the collection of an exudate in the pleural cavity. The pathology is the same as in the dry pleurisy except for the presence of the exudate.

The *Exudate* may be clear and contain only fibrin and a few cells or it may become hemorrhagic or purulent resulting from an outwandering of leukocytes. The latter type is usually associated with either pneumococcic or streptococcic pneumonia, and is known as empyema. It has been noted frequently during the recent influenza epidemics.

Lyon in describing the gross pathology of influenza says: "One of the more or less striking characteristic lesions was what may be hemorrhagic pleuritis associated frequently with pleural effusions of different characters."

Walker speaks of empyema and other pleural effusions as being fequent complications in the cases of influenza-pneumonia studied.

In the author's experience, during the epidemics of 1918 and 1919, he observed a high percentage of empyemas as complications of pneumonia, all of which were due to either the pneumococcus or the streptococcus hemolyticus.

CONCLUSIONS.

(1) Acute non-tuberculous infections of the lungs are due to pyogenic invaders, such as the pneumococcus, streptococcus, etc.

(2) It is suggested that inflammations of the lungs and pleura are probably due to secondary infections from some primary focus existing in the open avenues or on the surface of the body.

(3) It is suggested that the majority of pleural inflammations result from secondary pyogenic invasion of bacteria and not from tubercular infection.

(4) The pathology of influenza pneumonia, it is agreed, is a hemorrhagic lesion associated with small broncho-pneumonia patches

throughout the lung tissue and a large amount of bronchial and pleural exudates.

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IN WRITING ADVERTISERS,
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ACUTE NON-TUBERCULOUS INFECTIONS OF THE LUNGS AND PLEURA—SYMPTOMATOLOGY AND DIAGNOSIS.

By MANFRED CALL, M. D., Richmond, Virginia.

A Discussion of the Symptomatology and Diagnosis of the Acute Non-Tuberculous Infections of the Lungs and Pleura includes all of the acute non-tubercular infections of these two structures of bacterial or parasitic origin, whether developing primarily in these two locations, occurring as a process secondary to a near or a remote focus, or as a complication in such diseases as diabetes mellitus, cardio-vascular sclerosis, nephritis and the various arthritides. A list would include:

Pleurisy, dry and with effusion, serous, purulent, free. encapsulated, interlobar.

Lobar-Pneumonia, massive, central, migratory, senile, terminal.

Broncho-Pneumonia, discrete, disseminated, confluent.

Infarction, if septic.

Pulmonary Abscess.

Syphilis.

Actinomycosis, aspergillomycosis, oidiomycosis, nocardiosis. These latter are certainly rare in our section, they simulate either pneumonia or tuberculosis, and a positive diagnosis is established by the recovery of the specific organism from the sputum. I will not consider them further.

SYMPTOMS.

Rather than indulge in a stereotyped discussion of these more common infections, we may more profitably consider the symptoms which, singly or in combination, may be encountered in any or all of them with a consideration of their significance when present.

These symptoms are: Cough, expectoration, dyspnoea, cyanosis and pain, as well as the constitutional manifestations of the infection as evidenced by changes in the temperature, pulse, and respiratory rate and nervous phenomena.

COUGH. Irritation of the pulmonary parenchyma does not produce cough. In the lower respiratory tract (that is below the larynx), cough means bronchial or pleural irritation, the most sensitive areas along the bronchial mucosa being at the bifurcation of the trachea. This cough may be productive or non-produc-

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tive. A productive cough is associated with expectoration, and expectoration makes the diagnosis much easier.

Cough may be constant (with a continual irritation), or paroxysmal, the result of a gradual accumulation of secretion which finally overflows on the bronchial mucosa, exciting a cough which persists until the exciting cause is removed. This type of cough with resulting augmentation of expelled secretion is frequently induced by a change in the posture of the patient and the effect of this change of posture is of diagnostic importance.

An apical abscess or cavity, draining by gravity, will give a constant irritating cough without marked variation in the amount of expelled secretion.

An abscess, cavity, or bronchial sacculaton at the base of the lung with its periodic filling and discharge will excite the paroxysmal type of cough.

A vigorous cough indicates the absence of profound toxemia while the disappearance of a previously existing cough with a persistence of the physical signs may indicate a profound toxemia, or an excessive weakness.

A pleural cough usually intensifies the pain of pleurisy and the patient makes every effort to suppress or smother it.

A non-productive cough is useless. It harasses the patient when awake: disturbs him when he would sleep, and causes a useless expenditure of muscular and nervous energy: irritates the respiratory tract and, by increasing the alveolar tension directly, increases the work of the right heart. This in the presence of a toxic myocardium may determine a fatal dilatation.

Expectoration is a symptom closely associated with cough and dependent upon it. The pus or serum content of the sputum determines its fluidity: its mucus and fibrin content determine its viscidity. The greater the pus content the less the air content: the smaller the tube of origin the greater its air content.

The amount of the sputum frequently depends on the factors mentioned while discussing cough (constant drainage or periodic overflow, the size of the cavity and the amount of bronchial irritation).

From bronchiectatic sacculations and pulmonary abscesses more or less characteristic expectoration is seen (the three layer sputum) and from this may be obtained tissue shreds from the parenchyma.

The occurrence of blood in the sputum is always a matter of moment. It varies from the tinge of a capillary oozing, the larger amounts of a ruptured bronchial varix to the massive hemorrhage of cavitations. While hemoptysis does follow the occurrence of an infarction and the pneumonias, the occurrence of pure blood, unexplained, always excites the suspicion of tuberculosis.

Pain. The pulmonary alveoli are insensitive to pain. The presence of pain usually predicates pleural involvement. Its manifestation varies from the slight stitch in the side to a pain of an agonizing character. Pleural pains are, as a rule, more intense on inspiration: forcible expiration will also intensify the pain.

The occurrence of referred pain from pleural irritation should be remembered, as it is so frequently misinterpreted.

Irritation of the parietal pleura may cause pain in the occiput, the axillae, and the subscapular regions, while from the diaphragmatic pleurae its distribution would be to the back and to the abdomen. At times this latter is so severe as to be confused with the pain accompanying acute abdominal inflammation, such as appendicitis. The parietal pleura and the upper part of the diaphragm receive their innervation from the lower six intercostal nerves, the central diaphragmatic pleurae from the phronic nerve with painful spots along the ridge of the trapezius muscle.

Persistent cough with its unusual muscular exertion causes a distressing muscular soreness.

Dyspnoea is due either to a lack of oxygen, or to an excess of CO_2. Immobility of the diaphragm may induce dyspnoea and the recumbent posture would tend to intensify it, therefore the sitting posture of the patient is perferable when dyspnoea is extreme.

In lobar pneumonia, the alveoli filled with an exudate are fixed in a state of permanent expansion, therefore the diaphragm is more or less immobile. Toxic states that affect the respiratory centre and myocardial insufficiency will markedly increase dyspnoea.

The extent of lung involvement does not necessarily bear a direct relation to the degree of dyspnoea for the most toxic cases may have a comparatively small area of consolidation.

Cyanosis is a result of an encroachment of the alveolar capacity with a marked reduction

in the functioning of the pulmonary circulation. Vascular and central nervous influences markedly intensify this symptom.

The Constitutional Manifestations of these infections are shown by the temperature variations and changes in the pulse and respiratory rate, nervous phenomena vary according to the degree of toxemia or to a cerebral localization of the infection, as a complication; occasionally cutaneous manifestations occur, such as herpes labialis in pneumococcic infections. The severity of these symptoms is dependent upon the virulence of the infection and the resistance of the patient.

The temperature elevation may be taken as a rough index of the patient's resistance to any given infection. Failure of the temperature response and its gravity as a prognostic sign are well illustrated in the senile form of pneumonia. Here the temperature is normal or subnormal and the mortality is 100 per cent. High initial temperature may be followed by an abortive form of the disease. Sudden accessions of temperature with an intensification of symptoms usually signifies an extension of the disease or the onset of complications. Where the infection lingers, its virulence becomes attenuated and the temperature assumes the septic type, the remissions being more marked and associated with sweating.

The Pulse Rate, Volume and Rhythm is an index of the degree of toxemia, the efficiency of the myocardium, and the state of vasomotor control. On these factors depends the variation in blood pressure readings. A marked bradycardia suggests a vagus stimulation and this is commonly due to a peribronchial irritation involving the fibres of the pneumogastric.

The Respiratory Rate varies with the depth of inspiration (influenced as it may be by pleural pain), the extent of pulmonary compression by effusions, the extent of consolidation in pneumonia or infarction, the occurrence of atelectatic areas in bronchopneumonia, and the effect of toxemia on the respiratory centre.

The Facial Expression and protecting posture of acute pleurisy are familiar sights, while the orthopnoea, shallow breathing, dusky facies of extensive effusions form a striking picture.

The Physical Findings in these infections will be discussed in a general way rather than as applied to each diseased condition, for if we can fix in our minds the principles underlying the occurrence of these physical signs we can with little effort apply the principles wherever such an application is indicated. "Superficial examinations are fatal to reputation and prestige. True economy of time depends upon a correct and systematic technique, quick perception, and intense concentration." (Greene.)

Inspection. Localized changes in outline, fixation, lagging, bulging, pulsations and the extent of diaphragmatic excursion as revealed in Litten's sign are the most important points covered by inspection. In addition to these I would emphasize a study of the inspiratory movements of the costal margins as developed by Hoover. Briefly stated, his exposition of this sign is, "Inspiratory widening of the subcostal angle and the outward movements of the costal border are not expressions of phronic excursions but of intercostal activation—that when the curve of the phronic plane is flattened the diaphragm gains the mastery of the costal margins and that when this is the case the costal margins *move toward the medial line* during inspiration. The only agent which causes widening of the subcostal angle during inspiration is the intercostal musculature."

Palpation is chiefly concerned with the detection of fremitus. An increased fremitus means a condensation of lung tissue due either to consolidation or compression. Diminished fremitus usually means pleural thickening, effusions, or adhesions.

Percussion by itself gives no pathognomonic evidence. It indicates the position of the thoracic viscera, the areas of condensed lung, the presence of abnormal amounts of air in normal or abnormal locations, the level of pleural effusions, the presence of the paravertebral triangle of dullness, the cracked-pot sound of a cavity communicating with a bronchus. The information gained by percussion must, as a rule, be supplemented and interpreted in the light of the auscultatory findings.

Auscultation gives the most definite information—the friction rub, pathognomonic of pleurisy; the distant and suppressed breathing of effusions; the hushed areas except on deep inspiration of broncho-pneumonia; the tubular breathing of consolidations and compressions; the increased whispered voice; the amphoric breathing of cavities; the egophony of effusions and the rales of varying size that enable us to make a fairly accurate localization of their point of origin. The study of these rales,

their disappearance and modification by cough, give the most important diagnostic information. "The crepitant rale is the only rale produced in the alveoli and indicates parenchymatous involvement of the lung". (N. & L.)

Crepitant rales are to be distinguished from friction sounds: the time of their occurrence is usually limited to the end of inspiration. The asthamatoid wheeze of Jackson is present in a considerable number of cases of foreign body in the bronchi, which may precede abscess formation. "It is heard by placing the ear or bell of the stethoscope close to the patient's mouth. It may be heard with both inspiration and expiration, but sometimes is audible only at the end of forced expiration. Associated with this are fine tissue paper crackles over a small area. To be distinguished from pneumonia in the early stage in acute cases, and from tuberculosis, if the body has been present for some time." (McCrae, J. A. M. S. CLIX-3.)

Laboratory investigations include a study of the blood, urine, sputum, exudates or effusions.

Blood. Leucocyte and differential count should be a routine. A leucocytosis indicates a pneumococcic or septic infection: it absence suggests an influenzal, tubercular or typhoid infection.

The polynuclear increase represents the virulence of infection: the total white count the resistance of the patient.

Consecutive blood counts are of great comparative value, not only as a guide to prognosis but as suggesting the onset of complications. A serum Wassermann may be indicated.

Urinalysis may be of diagnostic importance not alone in reference to changes occurring in the renal parenchyma, as a complication, but also as furnishing corroborative evidence of an obscure pulmonary condition. A pneumococcic pulmonary infection may be centrally located, without characteristic physical findings but with a typical onset of constitutional symptoms. Cabot has noted the value, in such cases, of the urinary findings of an acute nephritis, or renal irritation as evidenced by the presence of albumen and tube casts in the urine, and states that this finding has frequently been the determining factor in a positive diagnosis of lobar pneumonia. The pneumococcic toxin apparently has a selective affinity for the renal parenchyma.

In the year prior to the great flu epidemic fuliy 90 per cent of the cases of lobar pneumonia in my service at the Virginia Hospital gave the urinary findings of an acute nephritis.

During the flu epidemic of last year such findings were an exception, but the cases were not typically lobar pneumonia.

Sputum examination should be made in all cases. "Sputum must be as carefully collected as blood or urine that is to be used for cultural purposes." (Leutscher.)

"Have the patient rinse the mouth thoroughly with sterile salt solution and cough the sputum directly into a beaker of sterile salt solution. With an applicator that has been passed through an alcohol flame, stir the sputum around in the salt solution to wash off any superficial contamination, transfer with the applicator to sterile test tube and send to the laboratory. A report should be made of all the organisms that can be identified in the order of their predominance. This remark is of equal importance when sputum examinations are made for the detection of the tubercle bacilli. Contrary to the belief that the flora is an everchanging one, in the cases that are subacute or chronic, it has been proven that repeated examinations over a number of months show a remarkable uniformity in the findings. I have noted that after the sputum has been practically cleared of bacteria by a series of vaccinations, followed by a lapse of months, if the symptoms return, the sputum will show the same findings as before.

Effusions can be studied for cell differentiation: lymphocytes, polynuclears, endothelial cells, and cultures made, also guinea pig inoculations. This information, however, is usually confirmatory of other more positive clinical findings. Here I would emphasize the advisability of diagnostic puncture when indicated, a procedure that may give so much information, attended with little danger, and yet neglected by the majority of practitioners.

Roentgenographic Chest Examinations I have followed with the greatest interest, and frankly confess to a much broadened conception of pulmonary, bronchial, pleural, and mediastinal pathology, acute but especially chronic, since I have had the very satisfactory and close cooperation of my X-Ray friends.

Bronchial radiations and dilatations, the lymphatic involvement of acute infections simulating in appearance a diffuse miliary tuberculosis, bronchial gland involvement, cavi-

tations, adhesions, localized fluid collections, pneumothoraces, scar tissue formations, abscesses stand out with startling distinctness; while in long continued cases consecutive pictures give an unrivaled understanding of what has transpired in actual tissue change. The more highly trained roentgenologist I have found to be just as conservative in his statement of facts as any clinician of equal training and experience.

DIAGNOSIS.

It is sometimes possible to make a diagnosis by the physical findings alone,—peritonitis; pleurisy. Again, a diagnosis may require physical findings plus objective and subjective symptoms; infarction of the lung. A complete diagnosis usually requires a third factor and that is the etiologic factor. This factor can be separated into two groups, a predisposing and an exciting group by a careful general examination and a searching history. The group of exciting causes has been given detailed consideration in a preceding paper. This is undoubtedly necessary in the acute infections we are now discussing.

The predisposing causes include occupation, age, history of fatigue and exposure; habits; disease association, antecedent and coincident; especially acute or chronic infections of the upper respiratory tract; ethmoiditis; sinusitis; laryngitis; tonsillitis; pyorrhoea; septic foci in other organs of the body; malignant endocarditis; arthritis; nephritis; traumatism, either operative or accidental; the presence of an epidemic.

Information along this line of inquiry may be of the greatest help. For example, a recent tonsillectomy with a possible pulmonary abscess following in its wake, an acute lighting up of a chronic non-tuberculous lung infection, based primarily on an old infection of the upper respiratory tract: endocarditis with the possibility of pulmonary infarction etc.

The differentiation of the acute non-tuberculous infections from acute pulmonary tuberculosis will not be difficult if we keep in mind the possibility of acute tuberculosis. It is frequently missed because it is not thought of.

An undue prolongation of an acute supposedly non-tuberculous infection, especially if there is a past history of hemoptysis, or essential pleurisy, an apical parenchymatous change, rather than at the base, or cavitations, should certainly guard us against such an error.

I believe that any of the acute infections we are discussing are possible of diagnosis in a high percentage of cases, if we make careful use of our faculties of observation and reasoning. The essential laboratory examinations should be available to every practitioner. The technique is easy of acquirement, and the expense for equipment is small.

TREATMENT OF PNEUMONIA.*

By J. W. PRESTON, M. D., Roanoke, Va.

Following upon the heels of the great war, the two recent epidemics of pneumonia found us with the greatest medical organization the world has ever known, and through its agency, it can truthfully be said the study of this disease was the most intensive and thorough of any in the history of the healing art. Despite this as a destroyer of human life, pneumonia ranks today first among the acute infectious diseases.

At the outset of any study of pneumonia one is impressed by the seeming small value of comparative statistics for the reason that, as McCallum[1] has so well set out in the epidemics under consideration, there was so great a variation in the character and type of the invading organisms in different localities, and even in the same locality at different times, the one being mild and abortive, the other malignant, with all graduations between. This explains in a measure why the reported results of any given treatment varied so much, and also, what is of greater importance, was no doubt responsible for the impressions gained by many that the remedies of their own choice were of especial merit.

In the beginning of the first epidemic there was a mad rush for specifics, mainly in the direction of vaccines and polyvalent sera. The emissaries of commercial houses worked overtime and their propaganda was so effectual as to lead many to believe that no patient had been properly treated until some of these had been tried out. In the general search for specifics here indicated much knowledge was gained, though unhappily largely of a negative character. Much ground was covered which we need not again traverse if we profit by our experience.

In the matter of specific serum in the treatment of lobar pneumonia, it may now be stated

* Read as a part of the symposium on Acute Non-Tuberculous Infections of the Lungs and Pleura, at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

that authorities are agreed that it is a valuable adjunct in the therapy of type I, provided it be administered within the first forty-eight hours of the onset and in sufficiently large doses at proper intervals.

Lord[2] goes so far as to state that he is not only convinced of the value of the serum in type I lobar pneumonia but that there is no escape from the obligation to use it. In fairness, however, it should be noted that not all have had such uniformly good results as to maintain a mortality rate so low as 7.5 per cent, reported in Cole's[3] first series of cases, the figures varying from this, to that of 34 per cent, as reported from Camp Wheeler.

Touching the use of polyvalent sera we perhaps cannot do better than to accept a second statement of Lord, also made in the article above referred to, that "Type I pneumococci is the only antipneumococcic serum which has been found to be of curative value in pneumonia in the human subject". Notwithstanding this positive statement of so good an authority, attention should be called to a recent article by Gray[4] in which he presents a summary of the reports relative to the use of Key's polyvalent chicken serum, which makes a very favorable showing. Since chickens are immune to pneumonia it is claimed with apparent reason that a more concentrated product may thus be secured which has the distinct advantage of the small dosage of from 2.5 to 10 c.c. as against 50 c.c. or more of other sera, with the resulting inconvenience and dangers of the latter.

Having accepted as a fact that type I serum is curative, one is interested to inquire why it has not come into more general use. The answer to this in brief seems to be the impracticability, for the present at least, outside large centers, to secure prompt typing of cases, and the minute detail necessary in the administration of the serum. It must also be borne in mind that type I represents less than one third of all lobar pneumonias, and that by far the majority of cases the past two years have not been lobar but broncho-pneumonia.

In order to obtain first hand information I have written the health officers of a number of our larger cities and find that at present Boston, New York, Chicago, and Cincinnati type pneumonias free of charge for all who request it. Cleveland has not undertaken it: Philadelphia began it before the war but abandoned it. In reply to my inquiry, Dr. Stimson, of the Public Health Service, states that it is impossible to type sputum which has been delayed in transit; and that while it would be of value both to patients and practitioners, could it be accomplished, it does not at present seem practicable for the bulk of the population.

Since the technique of typing pneumonia is such that it can not be done outside a well equipped laboratory, manifestly, here in Virginia at least, such facilities are available to proportionately few practitioners, and the question naturally arises why not give the serum to all cases without discrimination, with the hope that those whose type is other than that of type I may not be materially harmed, while those of this type may obtain the benefit of its specific action. Cole[5], than whom there is no better authority, advises against such procedure.

As to the therapeutic use of vaccines in pneumonia, the most of us have had our try out. In addition their use was given a free reign in some of the Army Camps. There are among us but few enthusiasts left. In the present state of our knowledge they are in no sense specific, and the best that can be said is that the benefit derived is from a foreign protein. The most of us know from experience how easy it is to stir up chills, fever, sweats and depression by injecting foreign proteins, and we likewise know full well that pneumonia patients are not subjects with whom we can take chances.

Billings,[6] who is recognized as perhaps the leading authority in this country in such matters, discussing the therapy of foreign proteins in acute diseases, such as pneumonia, states that the results are not constant, that the *modus operandi* is not understood, and the procedure is not free from danger. He further states that if used the dose should be small and the risk should not be taken without due deliberation.

The use of convalescent serum, which for a time held out much promise, in the light of further experience, has been disappointing and had probably best be abandoned. Lord[7] reported its use in twenty-three cases with a mortality of just twice that of controls.

The intravenous use of glucose solutions has steadily grown in popularity, although a mortality of 20 per cent as reported in the cases in which it was used at Camp Dodge does not argue very strongly in its favor. In a recent

study of the results of 1,200 administrations, John[8] concludes that as an adjunct in the treatment of pneumonia it combats acidosis, aids nutrition, tends to produce sleep and reduce temperature, strengthens the heart and aids in elimination by the skin and kidneys. In his experience, a ten per cent solution has acted best; and of this he prefers to give 250 c.c. twice daily. He states that he has been unable to avoid protein reactions following its use in all cases, but appends a foot-note stating that Mosenthal has substituted the commercial glucose for the chemically pure, and that fewer chills are said to follow its use.

In the presence of the severe hemorrhagic type of pneumonia everyone must feel in a measure his helplessness. Affording a rational basis for therapeutic measures looking to the control of the lung condition before this stage be reached, Kline[9] calls attention to good evidence for the belief that this is a species of pulmonary edema having its origin in the bronchioles and more or less rapidly infiltrating the lung tissue and alveoli. Correlating this Cohen[10] and others are again stressing the importance of maintaining the blood pressure at as high a level as possible, through such agents as atropine, pituitrin, adrenalin, and digitalis.

Relative to the need and use of stimulants in pneumonia, there is still, as there probably always will be, a divergence of opinion. By the majority of men, as a stimulant primarily, alcohol has been doomed and discarded; but as an easily combustible food, thus indirectly acting as a stimulant, there is a lingering feeling that it has its place. Strychnia is losing ground as a stimulant to be relied upon, but holds its own as a tonic. Camphor and caffeine are waning in popularity.

Relative to the use of digitalis, there is much discussion and much misunderstanding. Contrary to what was formerly held, Cohn[11] has definitely shown that the heart in pneumonia is influenced in the same way and by the same dosage of digitalis as the normal heart. Many men seem to forget that in the ordinary dosage it takes about three days to get any marked effect upon the heart with digitalis and are for this reason disappointed in its use.

Relative to exposure of pneumonia patients to the open air, practically all are now agreed that it is ideal in all types of pure lobar pneumonia, provided the patient be kept snug and warm. Some are equally enthusiastic relative to such treatment for broncho-pneumonia. Others condemn it bitterly. Head[12] reported from Camp Wheeler a mortality of only 3.2 per cent treated in the warm closed wards as against 13.9 per cent treated in the cold open wards.

Having here reviewed the salient features of the recent literature relative to the therapy of pneumonia, in order to present the matter more concretely, some personal observations may perhaps with propriety be made.

Within the past two years I have seen but few frank lobar pneumonias. I have been impressed by the small percentage of cases I have seen develop pneumonia following influenza in patients who have kept quiet in bed, in a room maintained at a comfortable temperature, day and night. I have likewise been impressed by the small percentage of pneumonia patients willing and able to remain in bed, in a comfortable temperature, from the beginning, developing the hemorrhagic type. I have noted further that, in the majority of cases developing the severe types, there was a basis, either of loss of sleep, of physical exhaustion, of mental upset, or an inability or unwillingness to maintain surrounding conditions as above set forth, and my mortalities have been among such individuals.

The picture presented to me in the cases of a severe broncho-pneumonia is that of one suffering from exhaustion of the vegetative nervous system; a picture almost identical with that of shock and the best results I have seen or have been able to obtain in treatment have been such in the onset as would act as a prophylactic in shock, and in the fully developed cases such as would benefit a patient suffering from shock. Such a treatment would manifestly exclude severe purges, any except the smallest doses of coal tar products, sponge baths, cold air, and all exertion either mental or physical; in short, a treatment directed to raising the immunity by conserving the vital forces.

Of drugs, opium, preferably in the form of codeine by mouth, or minute doses of morphine (1/12 gr.) hypodermatically administered, at sufficiently frequent intervals to control the cough and restlessness, has been of greatest value of all. Opium has its faults and glaring defects but as a circulatory stimulant, in small dosages as a producer of a feeling of well-being, and as a means of controlling cough

and thereby lessening the flow of blood to the respiratory organs, it has no equal.

I have stressed the matter of a small dosage of opium for the reason that large doses tend to defeat the very purpose for which they are administered.

As an adjuvant, atropine is a close second to opium, but likewise best results are to be had with small dosages, about 1/600 gr. with the opiate, say hourly, till some effect be noted, then less frequently. Atropine not only tends to prevent the sweating incident to the use of opium, but in a measure controls the tendency to over-secretion into the bronchial tubes and the resulting blocking of the alveoli. Incidentally, atropine ranks among the highest as a respiratory and cardiac stimulant but, if pushed too far, the mouth and throat become unpleasantly dry and there may be retention of urine.

In order to sensitize the heart to digitalis action it has seemed advisable to begin all cases with a small dose of the tincture of the drug,—say 10 drops three times daily. This dosage does not upset the digestion yet is sufficient, should the circulation weaken, to enable one to quickly digitalize the patient by the administration of a half drachm to a drachm, at a dose, repeating as indicated.

As is well known, perhaps the most frequent cause of cardiac and respiratory embarrassment in pneumonia is gaseous distention of the abdominal contents, due either to toxæmia and exhaustion of the sympathetic nervous system as above referred to, or less frequently to the failure of food to digest, more particularly milk. For this reason, the diagnosis once established, frequent examinations of the abdomen have seemed in reality to have been of more value than those of the chest, and as an adjunct to the time-honored remedies, such as enemas and turpentine stupes, pituitrin has been of greatest aid. In fact, in some cases the results obtained have been little short of spectacular. To get the full benefit from its use, it should be given early and at regular intervals in such cases as show a marked tendency to distention. A small rectal tube introduced and allowed to remain in situ in severe cases, in addition to the above, has afforded marked relief.

As a quick pick-up for the heart and as a means of relief where there is an asthmatic tendency, adrenalin has seemed to aid, but its action is more transient. Hot coffee has also proven valuable. Hot mustard pastes applied to the entire chest early in the disease have undoubtedly been of very great help.

My experience with glucose intravenously has been limited but I believe it is destined to be of great assistance in such patients as will not be annoyed or upset by its use, especially those with a tendency to acidosis.

In the present state of our knowledge, the commonsense plan in treating any pneumonia, except type I of lobar, where the serum is available, would seem to be to forget the disease and to treat the patient.

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MEDICAL TREATMENT OF NON-TUBERCULOUS INFECTIONS OF THE LUNGS AND PLEURA EXCEPT PNEUMONIA.*

By GEORGE B. LAWSON, M. D., Roanoke, Virginia.

By far the most important of the acute non-tuberculous diseases of the lungs and pleura, aside from pneumonia, is empyema, and especially is this true since the advent of the epidemics of influenza. After the diagnosis of empyema is made and the pus localized, there is no medical treatment in the strict sense, but the condition is a surgical one entirely. And

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giving of medicine or using other methods than surgical is ignorant and criminal.

We usually regard the surgical procedure as wide drainage with rib resection, but in the last few years certain cases have been treated simply by inserting a small catheter or canula under local anaesthesia, thus making the drainage a minor procedure which is almost as simple as doing a pneumothorax, and for this reason has come to be considered almost under the head of medical treatment. This kind of drainage was impressed on me from the fact of seeing in consultation a number of very sick patients with empyema, at a distance from a surgeon and something had to be done immediately, and this method was adopted. Later on I have used it on a number of patients who were in good shape, and I must say I rather like it in some cases rather than the wide rib resections. The method of procedure is under local anaesthesia, to incise the skin with a knife, and then merely push the trocar through the chest wall and fasten the canula. After a few days a sinus is formed and then the canula can be drawn out and a lubricated catheter can be pushed in its place and fastened with adhesive. I have had a number of these flat trocars made of different designs; some with wide hilts so they can be fastened in, and some with an enlargement on the distal end of the canula to keep them in. The flat trocars are not made at the present day by the surgical houses except on special order. However, they were used years ago. Bell's Surgery, published in 1790, gives some excellent cuts, and Seidollot[1] in 1841 gives cuts of trocars and canulas with hilts to be retained, also suction apparatus, etc. All these types of canulas have some disadvantages, and lately I have been using a flat trocar simply to make a stab wound, and then insert a catheter; this has the advantage of being able to use suction if desired, is hardly as painful as the canula, and the patient can lie better on the affected side. This catheter should be changed each day so as to be sure there is no clogging. The opening in the chest wall can be made larger each day by putting in a larger catheter or by partly withdrawing the catheter and placing a small one beside it and the two can be pushed in nicely together.

The disadvantages of this method are that it is apt to give lots of trouble if attempted in a chest with thick walls, either fat or muscular, because it is harder to get through the chest wall, and secondly when the catheter comes out it is impossible to replace it. The catheter does not give the free drainage that is so much desired in all pus cases by surgeons. The catheters are more apt to stop up than are the larger drainage tubes; there is a possibility of causing bronchial fistula by the use of the trocar. The ribs are closer together in the back than in the front, and if a canula is left in position in the back it is apt to be very painful, and prevent the patient lying on the side. This type of drainage is unsatisfactory when made through the thicker parts of the latissimus dorsi muscle. It is a common belief that this minor type of drainage is more apt to cause chronic empyema; this is true unless one is very careful to see that tubes are removed frequently and that there is no obstruction.

And lastly the wide open method seems to be recommended by most surgeons. The advantages are that it is practically free from shock. If the patient is very sick this type of drainage is preferable to all others. It requires few instruments and no assistants; does not leave a large open wound to be infected; nor does it leave the chest wide open for a secondary infection; and lastly leaves little deformity. If the symptoms do not improve remarkably within a day or so after this type of drainage, it is better to have a larger opening made to see why the patient is not doing better.

I have used this method in sixteen cases. The first was in the country and gave temporary excellent results in an exceedingly sick woman until she could be brought to the surgeon; no attempt was made to keep permanent drainage. One case of general sepsis with turbid effusion died, and one patient with thick chest walls gave very disappointing results and had to be turned over to the surgeon. One is still draining, and one, a student, went home still draining. The others have gotten along very well. Two of these cases were drained in the office. There have been no recurrences.

In the above cases the patients were put on exercise as soon as possible, and were given bottles to blow water from one to the other. The use of suction did not seem to help much.

I would like to say under this head, that the average empyema case is better off in the surgeon's hands than in the physician's, even

using this type of drainage, unless that physician is very well acquainted with empyema and with the diagnosis of the chest conditions. I believe that in all medicine and surgery empyema is the one condition in which more good can be done by a good diagnosis and correct treatment than in any other condition, and that much harm can be done by such class of patients remaining in inexperienced hands.

I would like to consider here the time of operation. In the simple empyema following the lobar pneumonia, drainage should be done as soon as the diagnosis is made. In the broncho-pneumonia with early empyema and the primary empyema, due to streptococci, which have become so common since the advent of influenza, statistics have shown that the results are much better by simply aspirating for a few times until the pus has become thick, which may take probably a week or so, and then operating.

After pneumonia or after any acute chest condition, one finds a few cases which run a septic temperature, in which we may find some dullness with diminished breath sounds, yet one is unable to find pus with the aspirating needle. If the process is not tuberculous as shown by the sputum and by a competent X-Ray worker, it is better to have the surgeon explore the chest thoroughly by opening it. This point is emphasized by Ashurst.[2] I have had the surgeon open up three such cases, even when they were unable to aspirate pus under general anaesthesia. Moderately large pockets of pus were found in two of the cases; in the third a simple pneumonia was found. The mistake in operating on the third was possibly due to my not going into the history carefully enough. All three of these patients recovered.

The patient with a single fibrinous pleurisy usually comes to the physician for relief from pain. The best results are gotten by putting the patient in bed and using some form of counter-irritation, or by strapping the side with adhesive to lessen the mobility, or, as is frequently the case, the pain is so severe as to require a hypodermic of morphia. After a few days the symptom of the fibrinous pleurisy may clear up or the simple fibrinous pleurisy may form a pleural effusion. If the pleural effusion is small in amount and the patient is having few symptoms, this may clear up under proper medical care. Where this effusion is of any considerable amount, the best results are gotten by tapping the chest with a Potain aspiration and repeating these aspirations as often as necessary until relief is gotten. If one is careful in using local anaesthesia, and first incising the skin with a small knife or Hagedorn needle, the aspirating needle can be inserted with practically no shock or pain. One must remember that sudden death may occur in pleural effusion due to a number of associated causes, or even a change of position might produce death.

One may have death simply due to inserting a needle, and for this reason it is better to have the part well anaesthetized, preferably with novocain, or the aspiration may cause death due to taking out too much fluid. The Potain aspirator is one of the most useful instruments that we have, but unfortunately it has its disadvantages; after its use we are apt to leave it dirty in some place or other and on using it again we are apt to find that it is unsatisfactory at the critical moment; and each time before using it we should go over it carefully and see that the pump is working nicely, that all the tubes are clean, that the needles are not rusty, and that connections are good. In our hospital the Potain aspirator is the one instrument that usually does not work; however, with my own instrument I have very little trouble. Unfortunately, the pump has a place for attaching the tube on the compression side as well as the suction side. In my own experience I have found the pump to drop off and my assistant to replace it on the compression side instead of the suction side, and we were pushing air into the chest instead of withdrawing the fluid. As I use this for bleeding instead of cutting down on the vein, I almost had a death from the same thing. Now I have battered the other end of my pump so that it is impossible to make connection on the compression side. In tapping the chest one should use as rigid care and asepsis as in any major operation. Lambert[3] has recently made the statement that next to pneumonia, tapping the chest with a dirty needle has brought about more empyemas than any other cause.

One of the most important things about pleural effusion is the fact that so many are tuberculous, although we are unable to find anything definite at the time. Later on the condition develops into tuberculosis. If the family history is tuberculous, or the patient's previous

history is suggestive, the patient should be treated as a tuberculosis patient. If the patient does not suggest this, good after care should be taken of the patient, and he should be carefully watched from time to time for a possibility of a tuberculosis developing.

Many of our non-tuberculous lung abscesses follow nose and throat operations, or the pulling of teeth, and where we have a fairly typical history it is better, if possible, to get as good an idea of the condition as possible by a chest examination, and by taking stereoscopic plates in the upright position. This will help us differentiate from empyema or bronchiectasis.

A certain number of lung abscesses will clear up simply by rest and good care. Lord[4] analyzed 100 cases of lung abscesses at the Massachusetts General Hospital and of these 37 were unoperated cases, 7 recovered perfectly, 24 died, and 14 are untraced,—a mortality of 63 per cent. Of 62 operated cases, 10 completely recovered, 35 died, 14 had incomplete success, 2 died of T. B., 1 accident; a mortality of 56 per cent. It is only within the last few years that artificial pneumothorax has commenced to be used to any extent in this condition. Only a few isolated cases were reported until Tewksbury[5] in 1917 and 1918 reported twelve cases, and up to the present time has treated twenty-one cases with three deaths,[6] no deaths occurring within the last twelve cases. If the abscess is not amebic, nor due to a foreign body present in the bronchus, that must be removed, and if it is emptying into a bronchus I believe the best procedure is to try artificial pneumothorax just as we do in pulmonary tuberculosis. Tewksbury was unable to compress any case in which the disease had been present over 6 months, due to the adhesions that had formed. It is better to keep the lung compressed for several weeks after disappearance of symptoms.

One of our cases of multiple lung abscess cleared up after about six months under simple rest, good feeding, etc. I would like to report another in detail:

R. T. M., age 22, male, white, with the previous history good, came to the office November 21, 1919, with the history of having a throat trouble in March 1919, which was diagnosed Vincent's angina. Very shortly after this had his tonsils removed under ether. The next day was taken with pains in the left back and upper abdomen and left axilla. One week after tonsils were removed, he commenced to spit up large quantities of pus which has continued since then with remittent fever and loss of thirty pounds in weight. The physical examination showed a septic appearance, with slight dullness in left back, the sputum was negative to T. B. The stereoscopic plates showed a central lung abscess about 2 inches long, and about half full. A few days later artificial pneumothorax was commenced and given every day for several days, and then on alternate days until 2100 c.c. was put in. A plate was taken after each injection, and marked adhesions were found. One of these must have torn a hole in the lung because the abscess ruptured into the pleural cavity and a tube had to be inserted through the chest wall. The cough stopped in a few days and shortly after this the temperature became normal. The lung slowly filled out and showed no symptoms. The patient gained in weight and strength until he was apparently as well as before.

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THE SURGICAL TREATMENT OF ACUTE NON-TUBERCULOUS LESIONS OF THE LUNGS AND PLEURA.*

By DON PRESTON PETERS, M. D., F. A. C. S.,
Lynchburg, Va.

It is important to remind you that twenty minutes only is allotted me in which to discuss the Surgical Treatment of Acute Non-Tuberculous Lesions of the Lungs and Pleura. When you consider that this title includes, among other conditions, wounds, empyema, and abscess of the lungs, the utter impossibility of more than a brief mention of a few of the most important procedures will be apparent to you. The problem is still further complicated by the

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wide divergence of opinion among surgeons of to-day as to many points in Thoracic Surgery.

It is impossible not to be more or less influenced by personal experiences, yet in a reasonably unbiased way, I will endeavor to give you only the accepted methods or, when my own inclinations lead me to adopt one method in preference to another, reasons good or bad will be offered therefor in order that you may still be left as much in doubt as possible and as free to choose as before.

Embryology, anatomy, physiology and symptomatology will be mentioned not at all, or only in conditions where, for example, the symptoms indicate the line of surgical procedure to be adopted.

Violent blows on or compressions of the thoracic cage may result in rupture of the contained lungs without fracture of the ribs or even without solution of the continuity of the skin or underlying tissue, resulting in severe, even fatal, symptoms of shock or hemorrhage. On the other hand, such injuries, especially of the lower thorax, according to Crile, may show a grave resultant condition of shock with no accompanying injury of the contained viscera. In the first, immediate thoracotomy for repair of the damaged lung may be indicated, while in the other surgical interference would be but an added operative shock. The third type of resultant injury, the usual one, presents the fracture of one or more ribs, with or without wounding of the pleura and lung by the broken, indriven fragments which may have returned to a safe position or may still be tearing the lungs with each painful effort at respiration. In differentiating these conditions, the physical findings, the result of the use of the diagnostic aspirating needle, the presence or absence of emphysema and hemoptysis, and, above all, the x-ray examination will be carefully considered. With all these not a few of such cases will be left to that elusive, but still actual, entity—Surgical Judgment—to decide, not what operation to do but rather whether to operate at all or to depend on morphia and complete rest for the recovery of the patient.

Wounds to me mean war wounds. To those especially interested, I would suggest a reading of the report from The Laboratory of Surgical Research of the A. E. F., published in the *Boston Medical and Surgical Journal* of April 10th, 1919. The time spent will not be regretted.

Small points of entrance or exit in perforating wounds, with no injury of the bony cage and no evidence of severe hemorrhage from either the vessels of the walls or the lungs, require observation rather than treatment.

In thoracic surgery, the importance of the iumediate, complete, and, unless necessary to later reopen for drainage of an infected hemothorax, the permanent closure of all "Sucking Wounds" is paramount, for the reason that, as Lilienthal states, this form of injury "Gives rise to the well known flapping of the soft tissues of the mediastinum with each respiration. This condition is extremely dangerous, not only because it diminishes the amount of intrapulmonary respiratory air in the uninjured side, but also because the motion to and fro of the heart itself forms the basis of a particularly fatal form of cardiac shock." This closure should be, if possible, by suture, especially of the parietal pleura; if not possible, then by wet sterile dressings snuggly applied.

Larger wounds of entrance and exit, or of exit alone, caused by ragged shell fragments or tilting rifle or machine gun bullets, with lacerated wounds of the lung caused by the projectile itself or the indriven parts of broken ribs, present a high rate of mortality. Those surviving long enough to reach the hospital were, on account of their condition, usually subjects for admission to the shock ward after temporary closure of the sucking wounds with dressings when possible, when not, by the slightest possible operative procedure. If they survived the initial hemorrhage and the superimposed shock such operative steps as were indicated could be done later.

Penetrating wounds added to the above problems the question of the removal, immediate or otherwise, of the foreign body. Small fragments of shell or rifle bullets located in the periphery of the lung, unless easily reached, could be treated expectantly by closure of the wound of entrance after the usual debridement. If the condition of the patient permitted, larger foreign bodies or foreign bodies close to the hilum, and therefore to large blood vessels and bronchi, should be removed by thoracotomy, if necessary with rib resecton, inflation of the lung with ether or preferably gas-oxygen anaesthesia and complete closure of the wound. Where destruction of tissue rendered closure of the parietal pleura impossible, the inflated lung could be sutured to the pleural edges

of the wound, muscle flaps used to plug the opening and further closure accomplished by plastic methods, or, if necessary, temporarily by wet dressings.

Hemothorax was a frequent complication. Its treatment, in my opinion, should not be immediate aspiration, as was so often practised, for this was followed, on account of relief of pressure by a continuation or reopening of the flow of blood. In some cases, pressure demanded the evacuation of the fluid. Here the treatment was operative interference and ligation of the bleeding point rather than a loss of additional blood by aspiration and the immediate subsequent refilling of the thoracic cavity.

The bronchi contain various organisms. The wounding of a fair sized bronchus means the direct communication from the mouth through the bronchus into the pleural cavity and so, through the wound in the thoracic wall, to the outside air. If the thoracic wound be not present, infection is not so liable to occur as the intra-thoracic pressure will prevent expulsion of the organisms from the bronchus into the pleura by cough or respiration. Relieve this pressure by a wound and infection of the pleura is almost certain to occur. To this, probably, as well as to the infection carried in by the missile and clothing is due the frequency with which empyema following thoracic wounds occurs.

Our experience with empyema before the epidemic of 1917 and since has shown clearly the necessity for differentiating separate groups before the proper line of treatment can be adopted. Four of these can be readily diagnosed taking as the basis the causative organism:—

1. Pneumococcus.

2. Streptococcus, including of course the streptococcus haemolyticus.

3. Pneumococcus and streptococcus.

4. Other organisms, including most traumatic empyemas.

Also three types, viz., single, multiple and bilateral.

Under Surgical Treatment instead of the old stereotyped Incise and Drain we now recognize the necessity for the careful consideration of an additional WHERE? WHEN? and How? As regards the "Where" the same rule as formerly still holds good, i. e., at the most dependent portion of the cavity or cavities.

The second additional consideration, or "When" to operate is most important.

In our brief discussion of "Sucking Wounds", attention has been called to the very dangerous, often fatal, results apt to occur from the flapping of the soft tissues of the mediastinum, when an acute pneumothorax is produced. In two recent articles Graham has shown that, in the normal chest on the production of a unilateral pneumothorax, the protection to the lung of the unwounded side by the mediastinum is almost negligible and, further, that depending on the vital capacity "It makes practically no difference whether the opening is unilateral or bilateral provided the combined area of the openings does not exceed the calculated amount for the limits of safety."

In Group I these two most important points are not usually so carefully to be considered since, by the time the surgeon is consulted, the formation of fibrin and adhesions has so strengthened the mediastinum that the dreaded flapping does not occur, the already accomplished crisis has so increased the diminished breathing space present during the pneumonia that the relation between Vital Capacity and Tidal Air has passed the danger point, and thirdly, the patient's general condition, usually convalescent so far as the pneumonia is concerned,, does not render him nearly the same operative risk as in Groups 2 and 3. Therefore, not considering exceptions, which of course occur, it may be broadly stated that operation is indicated when the diagnosis is made. Indeed, it must be remembered that the longer the delay the more possibility there is of failure of the lung to expand and thus obliterate the pneumothorax remaining.

Groups 2 and 3, following measles, influenza, etc., present entirely a different picture. It is not necessary to recall the appalling mortality resulting from early radical treatment of these cases. Fluid forms early and adhesions later. Open drainage as soon as positive smears or cultures are obtained or the fluid becomes cloudy, means the production of pneumothorax before the mediastinum is stiffened and adhesions have formed, and, consequently, cardiac shock from the mediastinal flapping, the reduction in both lungs of an already greatly reduced breathing space, and the shock of an operation added to the burdens of a patient already overwhelmed with the toxemia of a still existing pneumonia. Another serious

danger, as Beck points out, is the absorption of streptococci from the wound of operation.

And so in these two groups the importance of WHEN to operate is far greater than How. Wait until the mediastinum is strengthened, until the empyema is walled off by adhesions, and, above all, until the pneumonia is definitely a thing of the past; in other words, until Groups 2 and 3, in all save the organisms present are reduced to Group I. It is well to emphasize the importance of no surgical interference, aspiration not included, during the presence of the pneumonia for, in addition to the toxemia, Graham has further brought out the important fact that the "pneumonia process may have so far reduced the breathing space that the Vital Capacity is practcally equal to Tidal Air." Then the production of a pneumothorax by even the smallest opening will asphyxiate the patient.

The perfection of the Surgical Treatment of any disease is usually in inverse proportion to the variety of operative procedures proposed. In empyema, we are offered our choice in selected cases, ranging from the severe primary major thoracotomy, of Lilienthal, through the old, simple and formerly fairly satisfactory costectomy with open tube drainage, down to the practically closed methods of repeated aspiration or the injection of 2 per cent formalin in glycerine as proposed by Murphy. It is impossible in our limited time even to mention them all and so it would seem better to discuss a few vital principles and leave the adoption of a definite method to the judgment of each individual surgeon.

In the early stages of Groups 2 and 3 pressure must be relieved and, since the fairly clear fluid is often teeming with organisms, a reduction of dosage can be obtained by aspiration with a vacuum aspirator and needle. In nearly every case this must be frequently repeated. Occasionally, though I have not seen it, cures are obtained. In the great majority of cases, when the proper time has arrived, drainage and ample drainage will be necessary. It is claimed that incision between the ribs many times gives sufficient drainage. On the other hand, the resection of 1½ to 2 inches of one, or even two ribs, surely and always does give this result, and adds so little to the operative shock as to make this consideration negligible save in the most desperate cases. For either method, local anaesthesia is to be preferred.

In all empyema operations it is important that the skin incision be so placed that, with the arms in the normal position, the superficial incision will not override the wound in the underlying tissues thus interfering with free drainage.

Since ultimate recovery depends, not only on drainage and so, sterilization of the cavity, but also on the expansion of the partially collapsed lung, then any method aiding or hastening any or all of these processes should be used. Dakin's solution properly prepared and properly used accomplishes these purposes in that it dissolves fibrin and so promotes drainage, exerts a definite antiseptic action, not only tends to prevent the formation of organized fibrin over the exposed surface of the partially collapsed lung, but also dissolves such as may have been formed and so accomplishes a chemical decortication, thus promoting the possibility of expansion of the restrained lung. It is not to be used in the presence of a broncho-pleural-fistula.

Both theoretically and actually, any measures tending to reduce the pneumothorax will encourage, to say the least, the tendency of the lung to expand; that is to say, the ideal method is one allowing free egress of drainage, facility for irrigating with Dakin's solution, and no ingress of air. I have not tried all but several methods and none is perfect. In all, care must be taken that the tube projects far enough into the cavity for drainage but not far enough to damage the expanding lung.

In addition to the external efforts at reduction of pneumothorax, internal efforts are of benefit. Use blowing bottles early and such exercises as possible at stated intervals daily. Especially see that the patient, by coughing and straining, endeavors to empty the chest of the Dakin's each time it is used. In addition to other things it is a splendid exercise. I have endeavored lately, by strapping the normal side, to add to the effect of these exercises on the collapsed lung. Complete sterilizaton of the cavity as shown by smears and cultures has not been with me an indication for cessation of treatment. As long as the cavity is growing smaller, even though slowly, as shown by its diminished fluid capacity, and the general condition of the patient indicates no walled off pockets or other untoward symptoms, the Dakin's is continued. When it is apparent that the expanded lung is everywhere prac-

tically in contact with the parietal pleura, the tube is withdrawn and the sinus allowed to close.

Even though progress halts for a week or more, decortication may be progressing, for often the diminution in size of the pneumothorax occurs by sudden spurts rather than a gradual lessening. This is easily explained by the fact, as Graham points out, that large pieces of the organized coating over the lung are cast off at times rather than a steady progress of the slow solvent action.

Multiple pockets, if condition of patient does not contra-indicate, should be converted into one by a resection large enough, when combined with the use of rib spreaders, to admit the hand. Pockets between the lobes and above the diaphragm should likewise be carefully sought for and sufficiently drained.

If, during the post-operative progress of an empyema case, signs of retained pus are in evidence, the following conditions are to be looked for: insufficient drainage of the single cavity, a walled-off pocket or pockets, or one of the numerous complications that may occur such as pericarditis, endocarditits, rib necrosis, mastoiditis, parotitis or even tuberculosis. Walled-off pockets may be drained through the original incision or treated as a separate lesion entitled to its own costectomy and post-operative treatment.

In locating secondary walled-off collections of pus as well as in the original diagnosis and during the progress of the convalescence, the X-Ray is invaluable. To me the diagnostic value of the aspirating needle is a *sine qua non.* Beck's paste is of definite value in both diagnostic work and certain chronic conditions, especially in those cases in which, on account of the presence of a broncho-thoracic fistula, Dakin's solution is not only painful but actually dangerous.

In bilateral empyema the same general principles apply. Contrary to quite a widespread idea, they may be synchronously drained when conditions justify operation, provided, as quoted above, with reference to the Vital Capacity, "The combined area of the openings does not exceed the calculated amount for the limits of safety." Otherwise, aspiration of both sides, or drainage of one with aspiration of the other must be adopted as a temporary measure until the progress of events justifies the more radical procedure.

Bell and Litchfield have pointed out the large amount of nitrogenous material thrown off in these profusely draining cases and the consequent importance of the dietary measures to be adopted.

So closely connected are lung abscess and gangrene that any attempt at differentiation is unnecessary. Wessler, in a recent analysis of 100 cases divides "Suppurative lung conditions roughly into two groups, (1) those due to the aspiration of septic material into the bronchi, and (2) the various primary lung inflammations, including both the frank pneumonias and the cases of so-called grip which undoubtedly represent unrecognized pneumonias".

Several methods of surgical treatment are advised. Cures are reported from the production and maintenance of an artificial closed pneumothorax. Thoracotomy is also recommended, though how this is in any way better than the closed pneumothorax, unless the abscess has ruptured intra-pleurally, is not apparent. The two methods of choice, it seems to me, are the two-stage operation of fixation of the involved area to the parietal pleura with subsequent incision and drainage of the abscess, thus protecting the pleural cavity from soiling and, most satisfactory of all, in suitable cases, a major thoracotomy with the removal of the entire involved area as in the case reported by Lilienthal. In this patient practically the entire right lung—the lower, middle, and greater part of the upper lobes—was removed with success.

The great advances in blood-vessel and intrathoracic surgery have changed embolus and thrombosis of the pulmonary vessels from among the hopeless and necessarily fatal sequelae of any surgical procedures to the point where their cure by operation is conceivable. Already this has been attempted several times but, so far as I have been able to find, without success.

The anaesthetic used and the method of its administration is, although not included in this paper, a most important consideration and aid in thoracic surgery. It is to be hoped that in the discussion this will not be overlooked.

Abe Martin says—"After all, th' best way t' double your money is t' fold it a couple o' times an' put it back in your pocket. An optimist is a feller that remains fer a circus concert."

INFLUENZA, IN THE PAST AND IN THE FUTURE.*

By WARREN T. VAUGHAN, M. D., Richmond, Va.

Epidemic influenza has been so widely discussed and rediscussed since 1918 that he must be a thoroughly conscienceless individual who will inflict upon his auditors yet another dissertation on this "shop-worn" subject. That it is a subject of the greatest importance will not be denied. That even after two years of clinical and epidemiologic study but little of value to the practising physician has been added to our knowledge of the disease is unfortunately a truth. But this should not discourage us. Many of the most valuable contributions to our knowledge of the disease following the 1889 epidemic were made from three to ten years later. It was nearly three years after the first epidemic spread before Pfeiffer announced the discovery of the bacillus which bears his name and which he believed to be the cause of the disease. It was not until in the late nineties that Leichtenstern published his excellent monograph, thereby clarifying remarkably our conception of the epidemic disease.

Little has been learned regarding more efficient therapy. Today, as formerly, the treatment in the presence of a pandemic must remain symptomatic. The use of convalescent serum offers some promise of therapeutic betterment, but during the stress of an epidemic this method could at best only be utilized on a few of the many ill.

Since 1918 the bacteriologist has acquired a vast number of facts concerning the bacterial flora of influenza cases. But he has been unable to demonstrate beyond question the causative germ.

The immunologist has made attempts to protect against the disease by the use of various vaccines. So far, the results have been inconclusive.

We must turn to the epidemiologist for information of the more recent advances in our knowledge of the disease. The epidemics are characteristically of such short duration, and we are so characteristically caught unprepared when they arrive, that investigators who must do their work during the epidemic prevalence are constantly at a disadvantage. The epidemiologist on the contrary, may acquire what information is necessary during the epidemic and later, at his leisure, study his records, correlate them, and draw his conclusions.

Time does not permit me to describe in detail the statistical enumerations, and the processes of correlation by which our conclusions are arrived at. I shall content myself with presenting before you a summary of the more important and the most interesting facts that have recently been established concerning the origin, pathogenesis and spread of this interesting disease.

The great antiquity of influenza is well known. Finkler says, "According to August Hirsch, the first influenza epidemic occurred in 1173 and he places it in his work as the first out of eighty". This has given the impression to some that influenza was unknown previous to that date. Leichtenstern has quoted Hirsch more accurately and, thereby, given an entirely different meaning to the statement. "August Hirsch says that the first epidemic that can be definitely said to be influenza occurred in 1173". But there is good evidence that epidemic influenza was known by the Hippocratic writers, at least three centuries B. C. Probably this disease is as old as all other infectious maladies,—as old as the human race.

INFLUENZA BETWEEN 1893 AND 1918. The last pandemic of influenza occurred in 1889 and was followed by recrudescences up to 1893. But since that time the disease has been present in widely disseminated areas, where it has often reached epidemic prevalence. In England and Wales, at no time since 1893 has the death rate from influenza been as low as it was in all of the thirty years preceding 1889.

In 1900 and 1901 mild epidemics of the disease were reported from cities throughout the United States and also in parts of Canada, the West Indies, Mexico, France, England, Germany, Denmark, Bohemia, Turkey, Spain, Malta and Honolulu.

In October, 1901 there was a mild epidemic in Georgetown, S. C., in China in 1902, in Laredo, Texas, and in Missouri in 1903, in the West Indies in 1904, and in Ecuador in 1906.

In the winter of 1907-08 there were epidemics which have been very well described in Pittsburgh, Baltimore and New York, while at the same time the disease assumed epidemic tendencies in the Rhine Valley.

We find similar descriptions of small local

* Read at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

outbreaks, covering small or wide territories, in nearly every year up to 1918. There is always great difficulty in identifying these outbreaks. Clinically, the cases resemble influenza. Also, without doubt, they are due to a contagious virus; but the most characteristic feature—the tendency to become pandemic—is lacking. But the epidemiologic features, the short duration of the outbreaks, and the character of the curves of incidence help to establish the identification.

In December, 1915, and January, 1916, influenza was epidemic in the United States. It first attracted notice in the vicinity of Denver. It was reported as being epidemic in twenty-two states, including all sections of the country.

There are those who claim to have seen individual cases of the disease in the U. S. Army camps in 1917. Similar claims are made for the British Army, and in the same year an outbreak of disease resembling influenza was reported from the German East front.

The deduction to be made from these observations so far is that influenza is a widely distributed disease, the virus of which exists in a state of low virulence in many or all parts of the civilized world, and that from time to time the virulence in certain localities becomes strengthened to such an extent as to cause local epidemics of the disease.

Source of Pandemic Influenza. The date and site of onset of the last great pandemic are subjects concerning which there is no conclusive information. There have been small outbreaks of clinical influenza with epidemic tendencies at one place or another during nearly all of the intervening years since 1889. In all of them the question is often as to whether they were true influenza, and also assuming that some were true influenza, how many of them should be so included. There is no one point in the last few years at which we may say that influenza which had previously been non-existent started from a single focus and spread throughout the world.

It follows from the experience of 1889 that we should attempt to find an endemic focus and to follow the progression of the disease. It is safe to say that once having become pandemic, the disease spread contiguously as it had thirty years previously, by transmission through human intercourse. But which of the several local outbreaks of the preceding years was the direct progenitor of the great pandemic? Three hypotheses must be considered in a discussion of the site of origin of the disease. *First*, the disease may be endemic in some one focus, such as Turkestan, and, like Asiatic cholera, spread thence at intervals over the earth. In this case, the inter-pandemic cases and outbreaks would be designated pseudo-influenza, similarly to the disease known as cholera nostras. *Second*, the disease may be endemic in two or more foci, perhaps one in the old world and one in the new. The simultaneous onset in the spring of 1889 in three such widely separated localities as Turkestan, Greenland and Athabaska favors such an hypothesis. *Third*, the virus may be universally distributed, existing as a rule in avirulent form. From time to time an enhancement of virulence in different localities produces local outbreaks. At great intervals, usually decades, the invasiveness becomes increased to such an extent that the disease finally starts on its mad career around the earth. It is not impossible that this great enhancement should occur simultaneously in more than one locality.

Periodicity. Attention has lately been focused on the third theory—that of a wide distribution of a relatively avirulent virus. Why is it avirulent and under what circumstances does it undergo an enhancement of its invasiveness? It has been suggested that the virus causing the disease has a life cycle, one feature of which is a periodic waxing and waning of virulence. The virulence increase would then be an intrinsic factor of the germ itself. Environmental influences would play a very minor part. Brownlee and Stallybrass have been foremost in this study of periodicity. They have charted the occurrence of influenza and pneumonia deaths in London and Liverpool by weeks since 1889, and, using the method of the periodogram, find that, if successive thirty-three week periods are superimposed, a single consolidated curve results. They infer that influenza tends to recur at thirty-three week intervals. Reasoning thus, Brownlee was able in an article published in November, 1919, to correctly predict the recurrence early in 1920. Stallybrass discovered three waves in his periodogram, and inferred that there may be three separate influenza viruses endemic in Liverpool, each with thirty-three weeks periodicity, but occurring at different times.

But there are several drawbacks to the method of the periodogram. *First*, they have charted deaths from influenza, bronchitis and pneumonia. This at best is but a group of diseases. *Second*, the death rate is no accurate indication of the incidence rate. *Third*, a periodogram to be of value must be composed of waves, all of nearly equal dimensions. The waves of the two last pandemics have so over shadowed the lesser intervening waves that the latter have disappeared in them. Spear finds that if there be any periodicity, it is more nearly around one year intervals,—that the variation may be seasonal.

We may summarize the subject of periodicity in saying that no exact intervals have been determined and it has not been demonstrated whether or not the variation in virulence is due to activity within the virus, or to environmental changes, or to both.

Nevertheless, a tendency to recurrnce at longer or shorter intervals is one of the most characteristic features of the disease.

ORIGIN AND SPREAD OF THE 1918 EPIDEMIC.

We now have some information concerning the direction and manner of spread of the disease during the pandemic. Influenza was first noticed in the United States early in March 1918. By the end of the month it had become more disseminated in very mild form over many of the states east of the Mississippi and a few west of that line. The following month the disease appeared in France. In the American Expeditionary Forces it first appeared at the base ports which were receiving troops from the United States. During this month the disease had reached the allied Western front, the German front had become infected and probably the disease had started on its travel inward into enemy country. In May the disease had spread from France to Scotland, Spain, Greece and Egypt. In June, England became infected, as also Switzerland, Germany, Austria and Norway. In this month the disease had reached as far as South America and India. In China on the 15th of June there was reported an epidemic of a disease resembling dengue which affected fifty per cent. of the population in Chefoo and Shanghai, China. This disease may well have been influenza. During July the disease had spread through Germany, appearing in the cities toward the West earlier than in Berlin and other more Eastern cities, including Vienna. In July the disease had spread to other countries of Europe and was again reported in China and India.

During its course through Europe influenza had developed a greatly heightened virulence and toward the end of August it returned to the United States in a reverse direction from that of its first spread and entering the country at Boston, it spread to the West and South until the entire country was covered. The West Indies were invaded early in August and in the same month the disease had spread through India as far as the Punjab. In September the epidemic continued through the West Indies, attacked Mexico and Canada, and had attained such remote localities as South Africa Union, Senegal and Korea. In October the spread was particularly distributed through South America, and in this month again remote localities such as Alaska, New Zealand, the Hawaiian Islands, Australia, Madagascar, were reached. Islands, which although not very remote, were isolated except for the arrival of occasional ships, such as Cuba, the Azores and the Canary Islands, were first attacked in October. In November the spread continued throughout the world and among the more remote localities should be mentioned Samoa, Arabia, and Iceland; in December, Lapland, the Society Islands, and the Fiji Islands.

It is particularly of interest to follow the spread of the disease from France in Europe. Perhaps the chief characteristic is the distribution equally to the north and south from that country. In May it spread to Scotland, and to Spain, Greece and Egypt. In June the spread was in three directions, to England and Norway on the north, to Switzerland, Germany and Austria on the east, and again into Spain and Italy on the south.

A most important observation made by MacNeal is that French physicians practicing among the civilian population were perfectly familiar with the disease when it appeared at Chaumont in April, 1918, that they designated it as La Grippe and stated that it had been extensively prevalent in the civilian population of Chaumont from March 15th to May 15th, 1918. This observation of influenza occurring in France at almost the same date as the first outbreaks in the United States is a matter of great interest. It has also been stated by Mc-

Nalty and by Carnwath, who quotes Kabeshima and Lee, that the disease was prevalent in epidemic form in China and Japan in March, 1918. We have here three foci from which the disease may have primarily originated. There are two possibilities: *first*, that it originated in all three foci and spread to all parts of the world from each; *second*, that the virus, distributed throughout the world, acquired high virulence in all three localities, causing small epidemic outbreaks but that the virus from only one of these places finally became so exalted as to cause the pandemic. Did the pandemic disease originate simultaneously in France and the United States? One fact seems certain, that the influenza which attacked our troops in Europe was influenza imported from the United States. We have seen that it first appeared in the American Expeditionary Forces at the base ports. Alberto Lutraria, Health Commissioner of Italy, has reported that the disease was brought to that country from America. A point of significance is the fact that during March and April there was an unusually large troop movement from the United States to the American Expeditionary Forces.

MacNeal says: "The suggestion that the epidemic was introduced from America is supported by the fact that it appeared at a time when large numbers of Americans were arriving in Europe, which is indeed an outstanding feature correlated in time with the onset of the epidemic".

Recurrences in the Winter of 1920. The pandemic of the autumn of 1918 was followed in most localities by one or two recrudescences, which lasted into March of 1919. Then ensued a period of relative quiescence which lasted until January of 1920. But during the intervening time scarcely a month elapsed without some report of epidemic prevalence of the disease in some part of the world.

Early in 1920 true epidemics occurred in most of the cities of the United States. In them a definite path or direction of spread over wide territories could not be discerned. The first prevalence occurred in Kansas City and Chicago,—far inland, and apparently totally independent of earlier prevalences in Europe and South America. Here, as in 1891-93, the outbreaks appear to have been due to the pandemic virus which had remained quiescent in all these localities. We may still describe them as numerous endemic outbreaks; even though in small contiguous territories there was frequently a definite direction of spread.

Outlook for the Future. When may we expect the next outbreak of influenza? Will it be mild or severe? Will individuals who have already had the disease be protected? What measures can we advise towards mitigating the damage?

The disease will surely return. An influenza period usually lasts from three to five years. We may say that the present period started, roughly, with the December, 1915, outbreak in this country. The course is about completed. But there is no uniformity. It may last longer. The probabilities are that there will be a moderate increase in the number of influenza cases during February and March of 1921, but that the disease on the whole will assume an even milder form than it presented in 1920.

Immunity. Is there any immunity to the disease? The author found, in a survey of ten thousand individuals in the City of Boston during the 1920 outbreak, that twelve per cent. of all individuals who had had the disease in the autumn and winter of 1918-19 had a second attack in 1920, while nine per cent. of those who had had no previous attack fell ill. Here we are faced with the phenomenon of equal incidence in the two groups. If anything, it was slightly greater in the group which had previously had the disease. There was no evidence of protection in individuals who had had the disease on an average from ten to seventeen months previously. This has been the experience of numerous other investigators in both the last epidemic and in former epidemics.

But there must be some degree of immunity, if even of short duration. Otherwise, we would be faced with the phenomenon of individuals falling ill with rapidly successive attacks, indefinitely repeated. The work of several investigators has established that a relative immunity exists for at least three months following an attack. This period may actually be somewhat longer.

Preventive Measures. In the presence of an epidemic, what preventive measures should be enforced? Few are of great value but certain ones are clearly indicated. Crowd gatherings should be prohibited. In Boston, in 1918 there were three crests to the curves of in-

cidence. The first followed by a few days the peace day celebration of November 11th, the second occurred during the week after the Thanksgiving holidays, and the third occurred during the time of Christmas shopping. Similar examples are numerous.

The closing of schools has little value. In Chicago, Jordan found no correlation between school activities and incidence. In fact, the incidence was highest following the Thanksgiving recess. Winslow and Rogers reached similar conclusions for Connecticut.

Living conditions within the family play a part, a small part, in the incidence of the disease. The author found in a study of 2117 families that the incidence was slighty greater in those families living under crowded conditions than in those in roomy quarters. It was also somewhat greater in dirty households than in clean ones, even in the same section of the city. Finally, we found that the incidence was greater in individuals sleeping in the same bed with influenza cases than in other members of the household.

We are all familiar with the work of Lynch and Cumming in which they conclude that the disease is often transmitted through improperly cleansed eating utensils.

What advice, then, shall we give our patients in the presence of an epidemic?

First: Avoid crowds.

Second: Avoid crowding in the family.

Third: Sleep alone.

Fourth: Pay particular attention to personal hygiene.

Fifth: Boil all dishes, etc. after meals.

Sixth: Do not eat in insanitary restaurants.

Conclusions:

The virus of influenza is distributed throughout the world, in an avirulent form. Nearly every year, mild outbreaks occur in one locality or another. The 1918 pandemic probably took its origin in the United States. The disease was, however, also present in France and in China almost simultaneously with its first spread in this country.

Immunity to the disease lasts in general more than three months but less than a year or a year and a-half.

Cleanliness and over-crowding both at home and in the community at large are factors in the rapidity of spread of the disease.

St. Elizabeth's Hospital.

Discussion of Symposium.

Dr. P. T. Southall, Amelia:—I do not care to talk much about the treatment of influenza, because we know that no one has found any specific treatment for it. I avoided giving coal tar preparations but, when these were indicated, I gave opium instead. On one occasion, when I visited four families of negroes close together, who had a large number of children ill with influenza, I instructed that they be given castor oil, followed by copious drafts of water or lemonade, and they all got well. I presume that the full drafts of lemonade or water eliminated the poison. In the epidemic of 1889, no negroes in this section had influenza, but it was prevalent among the white people, and four or five of them died with it or of pneumonia following it. I think the immunity of negroes was due to their staying out doors, while white people stayed in doors.

During the last epidemic, influenza was very prevalent among the colored people in Amelia. We have two large tobacco factories there now, and the disease spread out from them.

Dr. Virginius Harrison, Richmond:—Thirty years ago in our epidemic older people had it and died very rapidly; this last epidemic younger people had it. From my experience in the other epidemic the people who had it then did not have it this time. Those who had it 30 years ago were immune, and did not have it this time.

Dr. J. Bolling Jones, Petersburg:—There is one point in Dr. Vaughan's excellent paper which I wish to discuss. That is the matter of immunity conferred by influenza. If I understood him correctly, he stated that only in about 12% of cases was any immunity at all produced, and this lasted only for a period of six months. This is decidedly at variance with my own experience and judgment. My opinion is that one attack of influenza confers immunity in practically every instance. The main point in dealing with this issue is as to whether or not the given case had influenza in the first instance, when a diagnosis is made in a subsequent illness. We all know how prone we are to call every condition we see influenza when the disease is prevalent.

My impression has been formed entirely upon my own work. During 1919-20 I only had two or three of my own patients tell me, when making a diagnosis of influenza, that I had said before that they had it in the epidemic of 1918-19. In a great many instances, and of this I am very positive, I saw certain members of a family taken with the disease in the first epidemic and these went through unscathed, when the others went down in the last epidemic. We all know that in both of the late epidemics to see a case over fifty years of age was rare; again, that in most cases where there was an old person in the home, we usually had a nurse for the younger ones. In fact, the matter of immunity conferred is the only comforting factor to me in considering this awful scourge, especially since thus far we know not "whence it cometh, nor whither it goeth," and in the matter of treatment we are perfectly at sea.

Dr. T. Edwin Baird, Norfolk:—Unlike my friend, Dr. Jones, I am convinced that you can have influenza twice and, speaking from personal experience, I say that had any of you been as sick as I

was on the second go round, you would no longer question this fact, but would be scared as to the third attack.

Dr. J. Shelton Horsley, Richmond:—I want to discuss Dr. Peters' excellent paper and call attention to a few important items. Certain features of drainage sometimes are neglected, at least, neglected in the matter of following the biologic principles that are involved in drainage. In the peritoneal cavity we make a practice of sticking a tube down to an abscess, and expect to drain it up-hill. This is usually successful. This is because the peritoneal cavity contains an enormous amount of lymphatic channels and spaces, and the irritation of the tube causes a marked outpouring of lymph in an attempt to extrude the tube. In this way the septic products are also leached out. In the pleural cavity, however, there are few lymphatics as compared with the peritoneal cavity and consequently, gravity must be utilized in drainage here, so the tube is placed at the lowest point. When negative pressure is utilized in drainage, the tube being the natural outlet, attracts secretion in somewhat the same way that it is drained out by gravity.

The opening of an empyema cavity in the early stages before sufficient resistance against infection has been built up in a body is often disastrous and should be done with the least possible trauma. This follows the same principles that have been known for a long time in the bad results that often follow the opening of an abscess before it is "ripe."

Dr. A. B. Hooe, Washington, D. C.:—When we were having so much influenza in 1918, the records all show a mortality of 70%. Dr. Peters had an idea that he could probably use the so-called "closed method" treatment, but if you are not familiar with it here I would recommend it as well worth knowing. The cases were allowed to go on, many of them, until they were made out, then taken in, and many died immediately. The idea was conceived that there might be trouble after all, and if he got pus, all right; and if not, then try anything under local anesthesia, which was often done without moving the patient from the bed. The pus is not allowed to escape rapidly. Clean out with syringe very carefully, then pus is slowly drained off, and in some instances it took over an hour. After the pus is drained off, then the patient is washed out. Put in the cavity a tube which will seemingly fit it, withdraw the pus, leaving in the tube. Then the pus can pass out through this tube. The tube is left that way for a few hours; then the cavity is again washed out. After 24 hours irrigate with syringe, using Dakin's solution. The temperature of these cases is often 103 at the hour of operation. The next day it would be practically normal. I have seen these cases operated on with a temperature of 103, and sitting up in bed the next day feeling pretty comfortable, walking on the porch on the third or fourth day. These patients are never operated on under general anesthetic. They feel the injection of the needle, which is practically all the pain they have. The chart of the army and navy shows less than 3% mortality, and those cases were known to have trouble a week before they were brought in. Quite a number of cases were operated on. The tube was left in and left hanging down. In a day or two the patient was walking around. The patient would walk in, take off his shirt, and in short time put it back on, walking around again. No trouble to take care of them; get well in days, as compared with weeks under the older method. To show the advantage, they had a number of cases in drainage for weeks. Those cases were cleaned up, the old wounds closed; then the new method used and those cases cleared up rapidly. I do not think any method brought out during the war had as much result as the closed method did.

Dr. H. A. Burke, Petersburg:—We who served in the recent war had the opportunity of observing a large number of suppurative pleurisy cases. I am an advocate of the closed method and late operation. In my hands this method was the most satisfactory. I do not like irrigation with Dakin's solution, which was used extensively by some. I prefer irrigation with boric acid solution.

Late operation reduced the mortality from 34.7% to less than 3%. X-ray has to be used frequently in order to scientifically treat by the closed method.

FOREIGN BODIES IN RESPIRATORY TRACT AND THEIR REMOVAL BY THE LARYNGOSCOPE AND BRONCHOSCOPE.*

By J. E. DIEHL, M. D., Norfolk, Virginia.

It is not my intention to bring anything new before this body of medical men, but I think it may be of some interest to you gentlemen to have this subject presented in a form of personal experience of sixteen cases referred to me, with a history of a possible foreign body somewhere in the body.

While my results in some of the cases were not most gratifying, I cannot but feel encouraged, that what little work I have done in this direction had not been in vain. I have taken the liberty in this paper to mention three cases that anatomically come under the gastro-intestinal tract, but owing to the close proximity of the foreign bodies to the larynx, I thought it well to mention them. The first five cases had to deal with sand burrs that lodged between the vocal cords in children whose ages ranged between 6 and 9 years; all were colored, except one, and they all lived in the country; being of poor families, the care and nursing of the little ones were no doubt neglected. The history of the accidents was practically the same in all cases, as follows:—

A healthy child, while playing with other children, suddenly was seen to fall to the ground and be taken with a coughing and choking spell, followed by difficult breathing, aphonia and great anxiety. On admission, which was within 24 hours following the acci-

* Read at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 27th, 1920.

dent, the breathing was labored, the facial expression that of anxiety, aphonia in all the cases and no temperature. Without an anesthetic, general or local, the patient was placed in Boyce's position and the foreign body removed by the laryngoscope and the patient allowed to go home immediately thereafter.

Case 6.—A boy, 9 months of age, while eating a piece of raw or uncooked Irish potato, was suddenly taken with a paroxysm of coughing, choking and became cyanotic. Six hours after the accident the child was admitted in a prostrated condition, the breathing labored, cyanosis well marked. On laryngeal examination a piece of uncooked Irish potato was located between the vocal cords and removed by the laryngoscope without an anesthetic, and the patient allowed to go home immediately thereafter.

Case 7.—A boy, 9 months of age, suddenly taken with a coughing and choking spell and labored breathing. The mother could not account for this paroxysm of coughing until she missed a safety pin she had taken off the child in changing its clothes. On admission, the child seemed to be fairly comfortable, but was breathing with some difficulty; he had no temperature. Without general or local anesthesia, the child was placed in Boyce's position and a laryngoscopic examination was made and an open safety pin was found between the vocal cords, with the point protruding upward; the pin was removed by the laryngoscope and the child allowed to go home the following day.

Case 8.—A boy, 13 months of age, was suddenly taken with a choking and vomiting spell while he was being dressed, and the mother was under the impression that the baby put something in its mouth but was not sure what it was. She noticed that he had difficulty in swallowing and would regurgitate liquid. On admission the following day, the child nursed the breast, but had difficulty in swallowing and the milk would flow from its lips. He seemed to be uncomfortable, but did not look sick. Esophageal speculum was introduced and a closed large safety pin was lodged in the right pyriform sinus that extended over to the left in a horizontal position. The pin was removed and patient allowed to go home the same day.

Case 9.—A colored boy, 2½ years old, was referred by Dr. Land, of Norfolk, with this history. Six hours before admission the patient swallowed a five-cent piece. He immediately began to vomit and he would hold his hand to the upper anterior chest as though in pain. A fluoroscopic examination was made by Dr. Jas. W. Hunter, of Norfolk, who beautifully demonstrated the coin opposite the third thoracic vertebrae. The parents were instructed to take the child to the hospital for esophageal introduction. The instructions were not carried out and the patient was not heard from; evidently the coin passed down into the stomach.

Case 10.—A colored boy, 9 months of age, was referred by Dr. Jones, of Portsmouth, Va. Several hours before admission, while playing in the sand and gravel, he was suddenly taken by a paroxysm of coughing and choking and vomited frequently on the way to my office and four times during the half hour spent in my office. The child was sent to the hospital for further examination and, before an examination was made, the mother took the child home, against my advice. On the following day the child was reported well. A diagnosis in this case was undetermined.

Case 11.—A colored boy, 9 months of age, while playing on the bed with peanuts, was taken with a choning spell of several minutes' duration. The following day he ran a fever and had an irritating cough; on the second day the mother said he began to rattle in the chest. The condition grew worse from day to day and on the fifth day he was admitted to the hospital in an exhausted condition; temperature 102½° by axilla; breathing labored and a wheeze audible across the room. Physical examination by Dr. Sutton showed a general diffuse bronchitis, more prononunced on the right side, percussion note impaired, and chest movement on the right limited. A Roentgenogram, taken by Dr. Roach, showed a shadow on the right side. Without an anesthetic, local or general, the bronchoscope was introduced and a great amount of mucopus was removed by the sponge suction method; the mucous membrane was swollen and red from the larynx down to the smaller bifurcation. After several minutes' instrumentation without locating the foreign body, I did a tracheotomy to assist in ridding the mucopus and to let air into the lungs with the idea of improving the general condition, so that a subsequent bronchoscopy could be done without jeopardizing the patient. Th child improved slightly after the tracheot-

omy and on the third day, while the tube was being changed, a quarter of a peanut kernel was expelled through the wound. The child immediately began to improve and on the fifth day the tube was removed and the patient discharged from the hospital, with instructions to report at my office for dressing. Within a week from leaving the hospital the tracheotomy wound had completely closed and the child was in perfect condition.

Case 12.—A boy, 9 months of age, was referred by Dr. Land, of Norfolk. Three days before admission the child was playing with peanuts, when suddenly taken with a paroxysm of coughing and choking, became black in the face. The following day he had temperature, slight cough, disturbed breathing. On admission, the child was breathing bad, general appearance of toxicity and exhaustion, temperature by axillae 101½°. Physical examination by Dr. Bland, of Boykins, Va., revealed a diffuse bronchitis more marked on the right, percussion note impaired on the right. Laryngeal examination was negative as to false membrane, but the mucous membrane was red and swollen in a uniform manner. The bronchoscope was introduced and a copious amount of mucopus was removed by the sponge suction method. On account of the patient's exhausted condition I deemed it best to do a tracheotomy, with a view of draining off the secretion and allowing air to the lungs, with the intention of introducing the bronchoscope after physical condition improved. Bilateral lobar pneumonia set in and the patient died on the second day following the operation. While I did not locate a foreign body, I feel reasonably sure that I was dealing with peanut bronchitis, or as termed by Dr. Chevalier Jackson, arachidic bronchitis, basing my diagnosis upon presumptive evidence of child eating peanuts, rapid onset of diffused bronchitis with marked exhaustion, aphonia absent, the typcal bronchoscopic picture with absence of laryngeal membrane.

Case 13.—A white child, 3 years of age, referred by Dr. Morrison, of Suffolk, Va. The history of this case is practically the same as that of Case No. 12, except the child was very toxic and exhausted when I saw it three days after the accident. I examined the larynx to be sure there was no laryngeal diphtheria, then did a tracheotomy, in view of the fact that the patient was not in a fit condition for bronchoscopy. The child immediately began to improve after the tracheotomy and on the 5th day the temperature was normal in the morning and 99 in the afternoon, and the breathing practically normal, with the exception of a few scattered rales. The child was taken home, with explicit instructions that further trouble would probably develop. It is four months since patient left the hospital and, as far as I can ascertain, the child is in good health. I question the authenticity of the report. Diagnosis of arachidic bronchitis was made.

Case 14.—A white woman, 28 years of age, referred by Dr. Wesley Williams, of Norfolk. For the past two years patient complained of difficult breathing and pain in throat when swallowing. She had consulted a number of physicians and they all advised her that she had no growth or disease in her throat. In spite of the doctor's advice she insisted that there was something wrong in her throat and insisted upon an examination. A physical examination by Dr. Wesley Williams was reported negative. Under local anesthesia an esophageal speculum was introduced, the larynx and upper esophagus were found negative.

Case 15.—A man, 60 years of age, referred by Dr. Ferebee, of South Norfolk, Va. History of being unable to swallow for several days, and, when an attempt was made, he would regurgitate; he firmly believed he could not swallow. He was given ice cream in my office which he swallowed without any difficulty or regurgitation. He insisted that a foreign body was lodged in his throat and consented to an esophageal examination. Under local anesthetic the esophageal speculum was introduced and no foreign body or diseased condition located. The following day he stated that he was feeling all right and has continued so up to the present date. Eight months have elapsed from the examination.

Case 16.—A white woman, sixty years of age, referred by Dr. Byrd, of Norfolk, had complained for several months of difficulty in swallowing and a constant pain in the throat, which pain was not influenced by the act of swallowing. A report of the physical examination was negative. The patient insisted that there was something in her throat and was anxious for examination. Preparation was made for the examination. When she saw the

esophageal speculum, she decided that she would not be examined.

CONCLUSION: I have given a brief resume of my personal experience in these cases and would like to sound a note of warning to you, especially to the general practitioner, of the seriousness of peanut cases. While all foreign body cases are serious, the peanut cases are more serious and should demand immediate operative interference before the patient becomes too toxic or exhausted. Quoting Dr. Chevalier Jackson, it is wise to do the tracheotomy early and not wait for the signs of exhaustion and intense toxemia, which may render the operation ineffective. The ages of these unfortunate individuals are very striking. It is characteristic of babies to grab hold of objects and very frequently seem possessed with a resolute purpose to put them in their mouths. All of these cases were in families of reduced circumstances, consequently, the nursing was much neglected. The cases of sand burr are interesting from the fact that they occurred in children that have outgrown the characteristic tendency of the baby age above mentioned—the rough and tumble age, if I may so term it, when they run, tumble, and play rough, which occasions them to make forced inspiratory efforts with mouth open, which explains how easy it is for them to draw these light sand burrs in the larynx.

The last three cases, except one, occurred toward life's journey's end, when we are apt to be confronted with either organic or functional disturbance. These three cases possibly belong to a neurosis, hysteroid in character, and the psychic effect of introducing the use of the speculum has been stated by different authorities to be a good therapeutic agent.

337 *Monroe Bldg.*

THE CARE OF OBSTETRICAL CASES IN REMOTE COUNTRY DISTRICTS.—THE COUNTY HOSPITAL.*

By I. S. STONE, M. D., F. A. C. S., Washington, D. C.

From the best information obtainable, a few facts stand out prominently regarding the maternal death rate in this country, which should receive our careful attention and consideration. It appears to the writer that the care of the expectant mother and her safe delivery are of the utmost importance and that the residents of our extensive and often remote rural districts are not getting their due. When we compare the population of the country with that of cities, it is easily seen that the latter have almost unlimited facilities for the care of all patients while the maternity cases in the country are poorly provided for, although 50 per cent of our population reside in the country.

A few facts may be mentioned which appear to prove the great need of additional measures of prevention against a high maternal mortality in the country. Of sixteen countries in which reliable statistics are collected, the United States stands fourteenth in the number of maternal deaths from childbirth. Thirteen countries save more mothers than we are saving.* Only two, Switzerland and Spain, show a larger death rate. In the United States, sixteen thousand women die annually of childbirth or the consequences thereof, while the morbidity is beyond computation.

One of the most reputable of statisticians is Dr. Dublin, of the Metropolitan Life Insurance Company of New York City. He says that one woman in every 185 confinements dies in childbirth, the mortality being higher than that of coal mining or in the railway service. And that is not all, for puerperal septicæmia furnishes a death roll almost as long as that of tuberculosis, the most fatal of all diseases.

The number of deaths in professional hands is large enough, far too large, and ought to be greatly reduced, but there are far too many women coming to delivery amid unclean and unwholesome surroundings which constitute a peril and danger to human life that should be prevented by the State. I allude to the midwife question and wish to quote from the registrar of Vital Statistics of Virginia, Dr. Plecker. In the year 1919

59,643 children were born alive.

2,723 were still births.

23,035 women were attended by midwives.

983 still births occurred when midwives were in attendance.

Twenty-three thousand and thirty-five women were attended in childbirth during the year 1919 by a class declared by a competent observer to be the "most ignorant and dirty negro women to be found in the community." It is estimated that 15.2 in 100,000 of white

* Read at the fifty-first annual meeting of the Medical Society of Virginia, in Petersburg, October 26-29, 1920.

* The countries above mentioned are the most progressive and highly civilized in the world.

women and 26.1 in 100,000 of colored women die annually from childbirth. From the Virginia figures we gather that about 500 women die from childbirth and its consequences each year. No additional comment should be necessary to show a need for some change here, for if we cannot remove the midwife from this business we ought to remove the woman from the danger of having such attendance.

The Benefit of Hospital Care in Midwifery.

Disregarding reference to the comparative skill of professional men, the hospital has shown how the study of groups of cases may throw light upon many hitherto difficult problems. In no instance is this more clearly shown than in the use of the Wassermann test for syphilis and the relation of this disease to cases of abortion and still births. But it is not necessary for me to speak of what every one knows but rather to call your attention to the subject of hospitals which may fill an important place in rural life, especially in obstetric practice.

The County Hospital.

The rural or county hospital should prove an important aid in bringing nearer to our people in this largely agricultural State many if not all of the conveniences and safeguards which surround the sick elsewhere. This applies, in my opinion, quite as definitely to the obstetric practice, as to any, whether medical or surgical. Besides the Health Department, the Public Health Service and the work of the Visiting Nurse (for the work of all of whom I cannot speak too highly) in teaching and applying sanitation and in every way promoting the health of the public, it remains for the physician to actually have charge of maternity work. He must take charge of the patient before delivery, attend her during that time and afterward protect her from offensive interference and provide her with such other care as may be necessary until she has recovered. My belief is that obstetric practice is now regarded as the most unsatisfactory of any in the country. I am not at all surprised for I have had an experience which bears out and confirms the statement. It is almost impossible for a physician who has a large general practice in the country to do either his patient or himself full justice if obliged to spend many hours attending an obstetric case. With the patient in a hospital, with a resident physician always present to help and to notify him if necessary, very much more time could be given his other patients and very much more satisfaction given to everyone. If the physician has carefully studied and examined his patient, has learned all that he can of the position of the child and the pelvic measurements, especially if the patient is a primipara, he can absent himself for a greater length of time.

The Diminishing Number of Physicians.

It is heard on every side that country physicians are wanted. Whole communities are without near medical attendance. How long will it be before definite steps must be taken to induce competent physicians to practice in the country? Will it ultimately become necessary for the Commissioner of Health to select our physicians? Or will industrial reform, or socialism, provide a solution of the problem? I am confident that the scarcity of physicians is due very largely, if not entirely, to the attractions of city life for professional men. The graduate is equipped to work in hospitals. He has for at least five years observed the practice and, to a considerable extent, has actually practiced with the complete outfit now demanded of all hopitals by the A. M. A. and the American College of Surgeons, including the laboratory and all of the aids to scientific investigation of disease. It is this training and equipment that is influencing men away from the beautiful countryside and from the hardships of country practice. Many young men have remarked to me that they thought all this training useless unless they should have hospital opportunities in the future. To my mind there is no better way than to meet this situation frankly and to show these men that in this State we propose to develop a sentiment favorable to their demands. The hospital idea should be pushed to the front of all means to provide further care for our rural sick and also to make further and better provision for competent physicians to practice in them.

In a paper of two years ago I wrote of "The Standardization of Rural Hospitals".* The claim was made that they should be conducted along the same lines as the best city hospitals and should be licensed by the Health Department of the State and annually inspected by the director of that department or his deputy. It was urged that each hospital should have the support of the State and also should be the health center of the community in which it is situated. It would appear that our society

* See Trans. So. Surg. Assn., 1918.

might well take a short time at each session to hear reports from hospitals of this class and to discuss hospital extension as well as to hear from existing hospitals as to their methods used in the development of the project. For this purpose it would seem that a special committee or board could deal with the subject properly.

In many States there are numerous small hospitals, generally private hospitals, which have been barely able to meet expenses. This may be the case in Virginia and if so these might easily be converted into public or open hospitals. It is often true that a private institution in a rural community encounters greater opposition than it deserves. It would seem to be a wise move for these to open their doors to all qualified practitioners who may send patients. They could then enlist the active support of the physicians and every agency in the county or district to aid in equipment and maintenance. More money will be given and more help generally will be forthcoming when it becomes known that all classes will be admitted and that the hospital is not only for the well-to-do.

It is well known to all of those who have had experience with building and maintaining hospitals that the initiative must come from the community in need. There must be a whole-hearted call from those communities that have medical, surgical and obstetrical patients in need of hospital treatment. Although I am emphasizing the necessity for better and more extended care of obstetrical patients, I do not wish to appear less in favor of medical and surgical treatment of suitable cases in the hospital. It will require a number of patients who pay for their treatment and care to support the work of the hospital and I firmly believe that there is a growth of public sentiment in this State favorable to the extension of proper scientific care of every pregnant woman and her child.

There is not time for further consideration of this subject or I would like to say something about the particular kind of hospital needed for this work and why it should be the center of all public efforts as well as a home or headquarters for the public health nurses, whose help is absolutely essential in any or all methods of reaching every family in the State.

Stoneleigh Court.

DISCUSSION

Dr. Virginius Harrison, Richmond:—Obstetrical work is one of surprises. The first surprise is that by giving the patient enough time, Nature will do all the work; we can stand, sit, and rest, but Nature will often do all the work if we give her a chance. The other surprise,—the complications of obstetrics are often sudden, severe, and unforeseen. In many cases we expect to have trouble, but as I stated a while ago, give Nature sufficient time and it will accomplish a great deal. Hemorrhages take place when we do not expect them. Women do not deliver when expected. Complications come up. In the private home we may have one trained nurse who is not clean. She cannot assist and give the anesthetic at the same time. We must either sacrifice the baby, if in danger, or let the mother lose more blood than necessary, if she is bleeding. In the hospital, internes and nurses are there to administer anesthetic and to take care of the baby, thereby saving the baby and the mother the loss of blood. If this is true in the city, where we have assistants within call, in 15 or 20 minutes, what must it be in the country? Until the people are educated, we will not obtain enough assistance. There is no surgeon in my hearing who would do the work we are expected to do with as little help. If we have the patient in the hospital we have less excuse for doing bad work. At home often we have to sacrifice the baby in order to save the mother. I do not believe in performing operations to shorten the time of the doctor.

Dr. E. P. Tompkins, Roanoke:—Dr. Stone has elaborated on the lack of hospitals in the country, and it occurs to me that it may be necessary for us to come to the same situation as it is in France. It was my privilege in the year 1913, to visit the Maternite Hospital in Paris, and I was much interested in their methods of procedure. There they have educated mid-wives; young women who come to the hospital for a two-year course of study the same as medical students, and they go through the same sterilization as physicians do, and are competent to practice obstetrics. At the time I was in this hospital, where 12,000 births take place every year; there is a large operating ward, scrupulously clean, furnished with beds for 12 patients in the delivery room. At the time of my visit there were 6 labor cases in progress. I might mention, also, another thing that the Europeans have put into practice. In Paris, for instance, the hospitals are supported by a tax on amusements. All pleasure places are under control of the Board of Charities. If you purchase a ticket to a beer garden, moving picture, theatre, etc., or any other amusement, printed on the ticket is the amount or percentage of tax which goes to the hospital. Forty million francs a year are derived from this source. In Austria they put a tax on the land. Eventually, we may come to some such arrangement here.

ABSCESS OF THE LUNGS, WITH REPORT OF CASES.*

By J. T. McKINNEY, M. D., Roanoke, Va
Roentgenologist Lewis-Gale and Jefferson Hospitals.

The diagnosis and study of abscess of the lung by means of the X-Ray affords much valuable data and information to both the in-

*Read before the Tri-State Medical Association of the Carolinas and Virginia, at Charlotte, N. C., February 18, 1920.

ternist and surgeon, and it is from the viewpoint of the roentgenologist that this paper, with accompanying lantern slides is approached. While it is true that the majority of lung abscesses are easily recognized by the clinical history with the accompanying putrid and foul expectoration, the important thing to determine is the approximate size and number of the abscess cavities, their location, and amount of infiltration present. The progress of the development of the abscess, the determination as to whether it has ruptured into the bronchi, and the future course of the abscess cavity, can graphically be shown by the Roentgen Ray. Nor is it possible to accurately determine this by physical findings or signs, as dullness and diminished breathing over circumscribed areas are the most constant sign, and these are not always pathognomonic.

One of the most frequent causes of abscess of the lungs is due to the aspiration of infectious material from the mouth or throat during operations or following anesthetics. The three cases reported in this paper can be directly traced to this cause. One case followed administration of ether to extract a number of infected teeth, the other cases followed tonsillectomies.

The frequent reports of lung abscesses following the removal of tonsils would suggest extra care on the part of our laryngologists to use every precaution, to endeavor to prevent the squeezing out of infected plugs in the throat, when the tonsils are grasped by the forceps. Once this infected material is aspirated it becomes embedded in a bronchus setting up a pneumonic process, which gradually invades the surrounding lung structure and sets up a destructive process with final formation of a cavity.

From the type and character of the putrefactive expectoration seen in many of these cases we are led to believe that the majority of lung abscesses are due to the anaerobic bacteria.

The clinical course of lung abscesses is most interesting. In a very small percentage of cases we find the cavity completely clearing up, as in one of my cases. This is due to the breaking down and sloughing of the infected area, with a rupture into the bronchi and expectoration of the putrid material. The bacteria lose their virulence, the inflammatory process subsides, the lung expands and the cavity becomes obliterated, the infiltration being absorbed. The obliteration of the abscess cavity will not completely disappear, if fibrosis has occurred, and here the cavity becomes a permanent one. The many cases of remission of abscess are due in a large measure to an extension of the invading foci of infection, with formation of fibrosis; or the abscess cavity may secrete infective material; which may spread all over the lung causing a disseminated pneumonic process, as occurred in one of the cases reported. The remarkable recuperative powers of the lungs were never so well demonstrated as during the late war; thoracic surgery is no longer dreaded as in former times, the surgeon boldly entering the thorax with the same confidence as the abdomen. Nor was the elaborate apparatus and technique for keeping up the negative pressure of the lungs, brought out by Dr. William Myer, of New York, found to be necessary.

Many cases of abscesses of the lung follow "Flu" and pneumonia, and with the presence of the epidemic now with us, cases which show a slow and prolonged convalescence, with remission of temperature and failure of the pneumonic process to clear up, should be carefully watched clinically for either a lung abscess or empyema.

In practically all cases following aspirated particles of infective material the onset of the abscess is usually on the 10th to the 14th day. One of the symptoms encountered is hemorrhage, also a clubbing of the fingers, neither of which were noted in my cases. Cases following aspirated particles, as a rule, have more favorable chances for recovery, but if they do not show evidences of a spontaneous recovery after three months, there is little chance of their clearing up without operative procedure.

The X-Ray evidence consists of an area of pneumonic infiltration with varying degrees of density, with a cavity, as a rule circular in shape, embedded in the infiltrated lung and usually showing a fluid level. Any lobe may show involvement, but commonly the upper and lower lobes are less frequently seen. Artificial pneumothorax has been tried, but its use in the hands of the majority of observers does not seem to have demonstrated any appreciable value. The complete extirpation of the diseased part of the lung, as advocated by Lilienthal, in a number of cases appears to be the operation of choice, rather than incision and free drainage, as is more commonly done.

Lung abscesses, from the Roentgen Ray

standpoint, are to be differentiated from unresolved pneumonias, encysted or localized empyemas, primary and metastatic new growths, and some types of T. B. However, by close co-operation with the clinician and surgeon and a careful clinical history, the Roentgen diagnosis is not difficult, the X-Ray findings, in most cases, being characteristic.

Case 1.—J. D. S., physician, age 30. Tonsillectomy, November 19, 1919, under general anesthetic. Eight days afterwards was taken suddenly with severe pain in right chest, ill about a week, followed by high temperature which lasted eight days. Then felt "something give away," as he expressed it, on right side of chest, and he began to expectorate a great deal of putrid, foul pus.

Entered hospital December 13th. His blood count showed leucocytosis of 12,400, with 82%

Fig. 1. Case 1. Area of increased density extending outward from hilum of right lung, with abscess cavity within this area.

of neutrophils, 15% small lymphocytes. Urine trace of albumin; sputum showed many bacteria, staphys, streps and pneumococci.

Report of stereoscopic examination on December 14th was as follows:

"There is a marked increased density of pneumonic infiltration extending from the hilum of the right lung outward towards the periphery of the lung, from the lower border of the 1st rib to the upper border of the 5th rib, using anterior markings. This increased density appears to be situated practically in the mid-portion of the lung. Within the center of this area of pneumonic infiltration, there

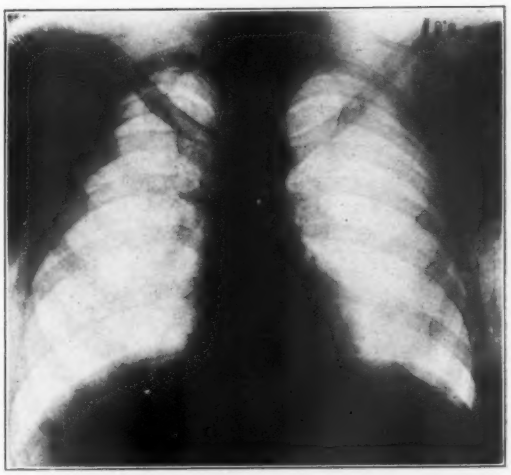

Fig. 2. Case 1. Pneumonic infiltration and abscess cavity practically entirely cleared up four and half weeks later. Compare Figure 1.

is a small area of lessened density which appears to be an abscess cavity, which has emptied itself."

The surgeon and internists decided to adopt the policy of "watchful waiting" and this patient was given symptomatic treatment and told to report for future X-Ray examination.

Upon re-examination on January 20, 1920, the X-Ray findings were reported as follows:

"The abscess cavity of the right lung, reported on a previous examination December 15, 1919, has entirely cleared up. A few small areas of pneumonic infiltration are still seen extending from the hilum out in the parenchyma of the lung, especially behind the 1st and 2nd interspaces, using anterior markings."

Patient was feeling fine, and from clinical symptoms, as well as Roentgen Ray findings, appeared entirely cured.

Case 2.—Mrs. G. B. S., age 36, entered hospital November 5, 1919. Five weeks previously had taken ether and a number of very bad teeth, with large abscesses at the roots, were removed. About 12 days after extraction of teeth, she developed what her physician thought was a pleurisy on the right side. Two attempts at aspiration did not locate any fluid. One week before entrance to hospital, she began to cough a great deal and expectorate a large amount of foul smelling material.

On admission to hospital temperature ranged around 100 to 101; pulse 112 to 120; respiration 24 to 28. Physical findings showed heart

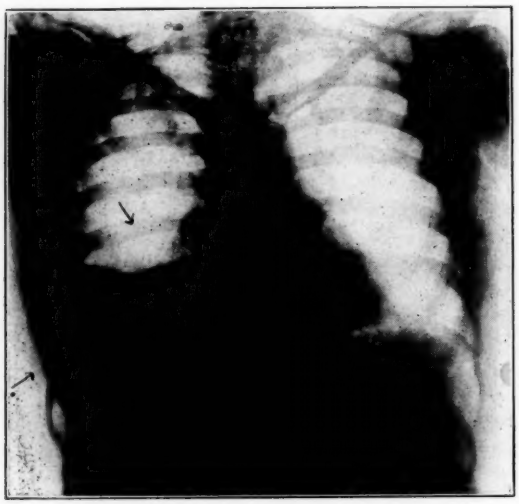

Fig. 3. Case 2. Dense shadow of pneumonic infiltration at base of right lung, with varying degrees of density and abscess cavity.

slightly enlarged in the transverse diameter, lungs diminished expansion on right side; dullness below the 6th dorsal vertebra posteriorly, and 5th rib in the axillary line, increased fremitus, and markedly decreased whispered voice. No rales heard over this area; few scattered rales over remainder of both lungs.

Leucocytes 22,200, polys 85, large mononuclears 3, small lymphs 11. Blood culture showed streptococci to be predominating organism. On standing, sputum separated into three well defined layers.

Roentgen Ray examination November 6, 1919, was reported as follows:

"An extremely dense shadow of pneumonic infiltration at base of the right lung. This shadow is made up of varying degrees of density, and extends to the outer wall of the chest, up as high as the lower border of the 5th rib anteriorly, and the lower border of the 7th rib posteriorly. This area is more or less irregular in outline, and has the appearance of an abscess of the lung, which looks as if it might have ruptured into the bronchus."

Artificial pneumothorax was given on November 16th, very little air being injected.

Rayed again on November 17th, 1919, with report of findings as follows:

"Very little air appears to have entered the pleural cavity, possibly due to pleural adhesions, and it is doubtful if enough compression can be obtained by artificial pneumothorax to overcome the pleural adhesions and empty the abscess cavity."

Operated on November 18th, resection of the 8th rib post axillary line, pleural cavity opened, considerable amount of foul pus evacuated. Abscess in lung located and opened, large amount of fluid and pus evacuated. Large rubber tube put into abscess cavity. Patient did not do well, and died November 26, 1919.

Case 3.—M. F., female, age 19. Past history negative. Had tonsillectomy under ether three months ago. Ten days after operation, developed high fever, chills, cough and fetid expectoration. In bed three weeks, running variable temperature, and having frequent attacks of coughing, which would last over an hour, expectorating exceedingly thick, foul, purulent sputum.

Cough still persisted and though up and walking around, patient did not feel well. Attending physician suspected lung abscess, and

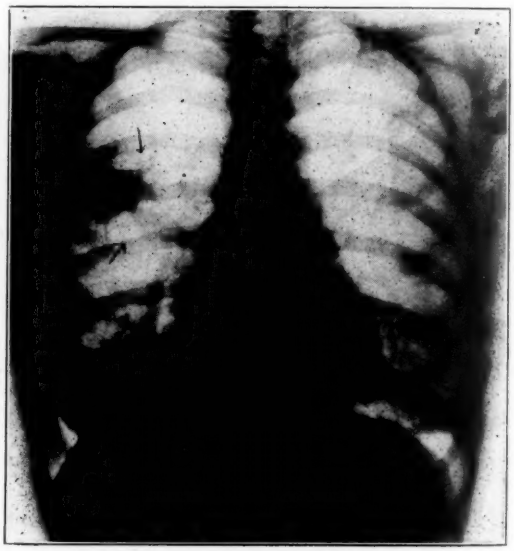

Fig. 4. Case 3. Area of pneumonic infiltration, with abscess of right lung. Examination made three months after tonsillectomy.

she was referred for Roentgen Ray examination.

Report of X-Ray examination made three months after tonsillectomy was as follows:

"Stereoscopic examination of Miss M. F.'s chest shows a moderately large dense area of pneumonic infiltration, extending out from the hilum of the right lung to the periphery, just back of the 2nd and 3rd interspaces, and situ-

ated near the anterior portion of the lung. Several small areas of varying degrees of density are seen within this area of pneumonic infiltration, giving the Roentgen Ray appearance of an abscess of the lung. Both lungs show no evidence of pathology other than the involvement noted above in the right lung."

Patient gives no history of a previous attack of "Flu," pneumonia, or T. B., and has been requested to report for future examinations, in order to study the course of the abscess cavity.

519 *MacBain Building.*

WHAT ADVICE SHALL WE GIVE REGARDING PREGNANCY IN PATIENTS WITH MAMMARY CANCER?*

By G. T. TYLER, M. D., Greenville, S. C.

The conclusions presented in this paper I have reached independently. Later, in a search for other cases and views, I found that they had been expressed in different form several years ago—even as far back as 1878. My excuse for offering the subject, however, is that I have rediscovered something which may be the means of saving more patients from the ravages of cancer.

Fortunately, the incidence of cancer of the breast and pregnancy is rare. Still the few cases I have collected lead me to believe that many others have not been reported. Our ideas regarding pregnancy and cancer of the cervix are quite well established. Pulmonary tuberculosis and severe heart lesions have a much more unfavorable prognosis if a pregnancy supervenes. Probably the principle that pregnancy does aggravate the danger has been acquiesced in, but not radically applied when dealing with mammary cancer.

My patient, Mrs. A. H., aged 38, the mother of three children, the second a twin pregnancy, was six months pregnant at the time I first saw her. There was a lump in the left breast which she had watched for eight months. It had gradually increased to the size of a hen's egg; was beneath the nipple. There was no discharge, the skin was adherent and dimpled. The axillary glands were palpable. At operation, five days later, radical removal of breast and axillary glands was done. There was a gland 1 cm. in diameter beneath the falciform ligament. Recovery from the operation was uneventful; the patient went to term; was delivered of a normal child; but died six months after operation from visceral metastases. There was ascites, with a large nodular liver. She nursed the child until her strength failed. It is in good health at present.

Study of this case raised in my mind the question of permitting pregnancy to advance if cancer of the breast is found. In a search of the recent literature, I found several cases. E. P. Davis, in *Progressive Medicine*, 1918, reported a case of mammary cancer in a patient aged 40, who was pregnant. He was not allowed to do anything except to make local applications to the breast. After delivery by section, the cancer grew rapidly, invading the wall of the chest. The patient died soon after delivery. Mussey, (*Am. Jour. of Obstet.*, Aug., 1918) reviewed 100 cases from the Mayo Clinic where operation was performed upon women who were pregnant. Among these were two radical operations for cancer of the breast. Pregnancy was not interrupted. There is no further information regarding them. Bainbridge in an instructive contribution (*Am. Jour. of Obstet.*, Jan., 1918) reported one case of his own, and collected 15 others from the literature. In his case, pregnancy took place after recurrence had been discovered. A study of this paper will amply repay one interested in the association of these conditions. He gave also experimental evidence of the rapid development of cancer during and after pregnancy. Bloodgood, on the other hand, (personal communication) said that, owing to the scant data collected on this subject, the only advice he had was to operate for the breast condition. A surgical acquaintance has recently told me of two patients on whom he had operated for cancer of the breast. They later married, became pregnant, and died of metastases.

The conclusions I have reached are: If cancer of the breast occurs in the child-bearing period, pregnancy should not be permitted until at least three years—better five—have lapsed after operation, and then only if there is no evidence of metastasis. If pregnancy does occur during this time, it should be terminated as soon as recognized. If mammary cancer is discovered during pregnancy, not only should operation be done, but the pregnancy should be terminated, or the patient should bear the responsibility of non-interference.

*Read before the Tri-State Medical Association of the Carolinas and Virginia, at Charlotte, N. C., February, 1920.

FLUID INJECTIONS BY THE INTRA-PERITONEAL ROUTE.*

By JOHN S. WEITZEL, M. D., Richmond, Virginia.

Blackfan in 1917, at the suggestion of Howland, began the use of the injection of normal saline solution into the peritoneal cavity, and by its use demonstrated conclusively that this route was by far the most satisfactory therapeutic measure in the treatment of the severe nutritional disorders of infants, especially when, after continued vomiting and diarrhea, marked loss of body fluids had resulted.

This treatment was first used as a routine measure on the service of Professor Garrod at St. Bartholomew's Hospital, London. Previous to this no reference has been found in the literature.

The technic is as follows: The patient lies in the recumbent position with the motion of its arms and legs restricted. The most favorable site for the introduction of the needle is through the linea alba about one-half to one inch below the umbilicus. The skin is prepared after the usual surgical method with iodine and alcohol. The needle used is preferably an 18 gauge Quincke needle which prevents any danger of the sharp point puncturing the intestine; however, a regular 18 gauge needle without the obturator may be used as it has been demonstrated conclusively that no injury has ever occurred to the underlying intestine, providing the usual precautions are followed. Numerous men use the site of injection at a point external to the outer border of the right rectus muscle, half way between the costal margin and the anterior superior spine of the ileum. Personally, I prefer the first mentioned site as I have seen marked inflammatory reaction set up around the site of injection when the latter point is selected. This reaction, I feel, is due to penetration of muscle substance which has a greater blood supply, hematomas and inflammatory processes sometimes resulting. These I have never observed in selecting the first mentioned site. The skin and subcutaneous tissues are picked up between the thumb and index finger and the needle pointing upward is inserted at an oblique angle through these structures; the direction is then changed to a vertical angle and the peritoneum punctured. Before the needle is inserted, the warm saline solution is prepared in an ordinary gravity apparatus and the coupler on the tubing is attached to the inserted needle, allowing the fluid to flow gently into the peritoneal cavity.

No definite amount need be measured for a particular aged child, as it depends more upon the amount of dehydration than upon the size of the child; however, a very small child ordinarily takes from 75 to 125 c.c. without any unfavorable results. About twenty minutes is usually taken to allow the fluid to enter the peritoneal cavity, and from 75 to 250 c.c. are usually injected, depending, as I have said, upon the age of the child, the amount of dehydration, and the amount of distention which the fluid causes.

The indications for the intraperitoneal injection of fluid are those diseases of infants which cause marked dehydration, in which case fluid must be gotten into the circulation promptly; for example, acute ileocolitis, acute intestinal intoxication, marasmus, feeding cases of a difficult type, gastroenteritis, rumination, pyelitis, acute enteritis and gastroenteritis with acidosis.

McLean and Lang, at Babies' Hospital, N. Y., in a series of ninety-nine infants receiving intraperitoneal injections, make the following statement: "We have not had any bad results from the intraperitoneal injections although we have noted discomfort in a few cases." They have made a careful study of the effect of intraperitoneal injections on the pulse, respiration and temperature with the following deductions: In ninety-nine infants, there was a rise in pulse rate in 52.7%, fall in pulse rate 10.1%, no change 37.7%; higher respiratory rate 45.9%, lower respiratory rate 2.3%, no change 51.7%; elevation of temperature 31.6%, fall of temperature 21%, no change 47.4%. Regarding weight, 35% gained, 40% lost, and 25% showed no change. Comparing the effect of other avenues of injection with the intraperitoneal route on the pulse, respiration, temperature and weight, they have observed that the pulse is more frequently affected in sinus and intraperitoneal injections than after hypodermoclyses. The respiratory rate is more frequently affected in peritoneal injections than in sinus injections and hypodermoclyses. This, of course, would be quite naturally due to the mechanical factor present. The temperature is more frequently elevated in sinus injections than in intraperitoneal injections or

* Read at a meeting of the Richmond Academy of Medicine and Surgery, September 28, 1920.

hypodermoclyses. Weight gains are more frequently noted following intraperitoneal injections than after sinus injections or clysis.

The number of injections varies, of course, depending entirely upon the degree of dehydration and intoxication. Some infants require an injection as often as every eight hours; however, the average requirement is once in twenty-four hours until the toxemia is overcome—a loss of that waxy, doughy appearance and a return of the tissues to their normal tone, with the profound stupor markedly improved.

In the number of injections done myself, I have only seen one unfavorable result, which was in a child three months old weighing 8 lbs. Eight hours after the injection, marked abdominal distention and tenderness were noted, with a temperature of 101 degrees F. A diagnosis of peritoneal irritation with temporary ileus was made. The condition entirely disappeared in 24 hours, and the peritoneal injection was repeated in 24 hours without any unfavorable symptoms following.

On performing an autopsy upon one of the infants, receiving three of these intraperitoneal injections, two days following the last injection, I noted: The abdomen was moderately distended; at a point from one-half to one inch below the umbilicus three small puncture wounds were present. On opening the abdominal cavity the anterior abdominal wall showed no abrasions of the peritoneal surface and no extravasation of blood, nor evidence of any inflammatory reaction around the puncture wounds. About 10 c.c. of clear yellow fluid was free in the abdominal cavity. The intestines showed no evidence of adhesions or abrasions.

A glass tube has been devised for puncturing the peritoneal cavity, which is used from six to eight hours after a peritoneal injection. The free fluid is drawn off by suction and a small quantity of straw-colored fluid is usually obtained. The smears from this fluid show a few polymorphonuclear cells but no organisms. The cultures were sterile.

The time required for the complete absorption of an average peritoneal injection of normal saline is about six hours, and Schloss, who has conducted very extensive investigations in this subject, shows the fluid to be absorbed more promptly by an intravenous injection of 7% glucose solution one hour after the intraperitoneal injection. This, he has proven, hastens the absorption of the saline into the blood stream.

Numerous other solutions have been administered intraperitoneally for experimental purposes; for example, McLean and Lang, in their work during the summer of 1918, used the following solutions: Six per cent. dextrose in normal saline, 6% dextrose in distilled water, normal sodium chloride, 2% sodium bicarbonate with 2% dextrose solution, 1% sodium bicarbonate with 1% dextrose solution. The most satisfactory results, up to the present time, however, are obtained by using only physiological salt solution in the peritoneal cavity, for it gives less irritation and discomfort than any of the other combinations mentioned. I have seen one case given an intraperitoneal injection of 2% sodium bicarbonate solution with marked irritation and discomfort resulting, and have never used anything but normal salt solution.

Having, therefore, this avenue at our disposal, and having had extensive observations carried out by such men as Blackfan, Maxy, Schloss, McLean, Lang and others, we are brought into possession of a means whereby the marked dehydration and toxemia associated with intestinal intoxication and marasmus in particular can be combated promptly and with no deleterious results.

Fluid, therefore, can be administered by the intraperitoneal route with more prompt results than by any other avenue, affording us a weapon that fills a long felt want in the treatment of diseases in infants associated with marked dehydration and toxemia.

Professional Building.

Discussion.

Dr. W. L. Peple reported a case of acidosis seen in consultation. The patient, apparently desperately ill, was given an intraperitoneal injection of 200 c.c. of a two per cent. soda and two per cent. glucose solution. Consciousness was regained in a half-hour, and the patient went on to recovery. Dr. Peple believes that the child would, otherwise, have died. It was difficult to inject the solution into a vein, because of collapse of those channels; into the rectum, because of straining; into the stomach, because of vomiting; or into the longitudinal sinus, because it was closed. It was emphasized that the apparatus used should be thoroughly sterilized, and that the utmost care should be taken because of the exceeding liability to injury.

Dr. Weitzel, closing the discussion, said there must be definite indications for using the injections. He reported a case in point. The patient was toxic and in a stupor. There were frequent watery stools, and for five days the temperature hovered around 103° F. Following the injection, the temperature dropped to normal and remained there.

ETIOLOGY AND TREATMENT OF ASTHMA.

By TURNER S. SHELTON, M. D., Richmond, Va.

Etiology. There are two types of asthma, (1) typical bronchial asthma in which there is some foreign protein acting either locally or centrally as an irritant to the smooth muscular tissues of the bronchi, causing a spasm of the bronchial muscles with a typical attack of asthma, which usually lasts only a short time and clears up completely between attacks; and (2) asthmatic bronchitis, which is associated with colds, chronic bronchitis, catarrhal conditions of the nose and throat and, sometimes, with infection of the teeth, tonsils and sinuses. This type is usually bacterial in origin, is more or less constant and has a tendency to get worse.

In some cases both bacteria and foreign proteins are the exciting factors, and in others it is impossible to find just what the cause is. The younger the patient the more likely it is to be caused by food or animal epidermal proteins or by pollen. Four-fifths of the patients that begin asthma in infancy, and two-thirds that begin in childhood are sensitive to protein or pollen; and very few that begin after fifty are so sensitive, these usually being bacterial in origin.

Of over six hundred cases studied by Dr. I. Chandler Walker, of Boston, 48% gave a positive skin test to some type of protein and 52% were not sensitive. Sixteen per cent of the total number were sensitive to animal epidermal protein, most of them to horse-hair or dandruff, and others to cat-hair, feathers, cattle-hair, dog-hair and wool, horse-hair being by far the most common, and dog-hair, the least common, causes. Twelve per cent of the total number were sensitive to food protein; most of them to cereal grains, such as wheat, corn and rice; others to egg, fish, milk and potatoes; a few to beef, lamb, pork and fruits. Ten per cent were sensitive to bacterial proteins, staphylococcus pyogenes aureus being the most frequent and streptococcus haemolyticus being next. Others were staphylococcus pyogenes albus, streptococcus viridans and micrococcus catarrhalis. In 11% of the total number, pollen protein was proven to be the cause of asthma, most of these being timothy, red top, ragweed and goldenrod; others were orchard grass, daisy, willow, birch, maple and pine. Bacteria may cause asthma either by producing a chronic bronchitis locally, or by infection of other parts of the body, throwing off bacterial protein and producing irritation centrally.

Contributory causes of asthma are cold air, dampness, changeable weather, strong winds, going from a hot to a cold room, menstruation, indigestion, distention of the gastro-intestinal tract, nervousness, tire, excitement, irritating odors and gases, colds and bronchitis.

Treatment consists of climatic, drug, specific protein and vaccine. Of these, the specific protein and vaccine are by far the most important.

Climatic. Change of residence from one climate to another will relieve some cases that are sensitive to pollen, by going to a location where that particular pollen does not grow.

Drugs. In the asthmatic bronchitis type, potassium iodide is of considerable value, in that it thins the bronchial secretion enabling the otherwise thick tenacious sputum to be much more easily discharged, affording considerable relief, but it has no effect on the sensitive type of asthma.

The most reliable and quickest-acting drug during an attack is adrenalin chlorid in 1-1000 solution given hypodermically in ten to fifteen minim doses, repeating as often as necessary. Morphine, atropine and belladonna are very beneficial and probably have in the past been used more than any other drugs. Benzyl benzoate, 20% solution, in 20 minim doses, gives considerable relief in most cases.

Specific Food-Protein Treatment. — The patient should absolutely not touch the protein to which he is sensitive, except in a few cases where the protein is destroyed by thorough cooking. To determine the protein sensitivity, the cutaneous test is most extensively used and the most reliable. It is made by making several small cuts on the flexor surface of the forearm (not deep enough to draw blood) about an eighth of an inch long; on each cut put a protein and to it add a drop of tenth-normal sodium-hydroxide solution, leaving one without any protein as a control, as some skins are so sensitive that they will react to the sodium-hydroxide solution. In half an hour wash and note the reaction. A positive reaction consists of a raised white elevation or urticarial wheal surrounding the cut.

* Read at a meeting of the Richmond Academy of Medicine and Surgery, September 28, 1920.

Bronchial asthma, due to animal epidermal and pollen protein, is very successfully treated by subcutaneous injections of the offending protein, but before the treatment can be given, skin tests of varying dilutions of the particular protein must be made to find out the initial therapeutic dose which is .1 c.c. of the strongest solution that fails to give a positive reaction, increasing each dose until 1c.c. is reached, then starting on the next stronger solution in the same manner and continuing until one gets a negative skin reaction.

BACTERIAL PROTEINS:—Patients who are sensitive to bacterial proteins should be treated with vaccine of the particular organism to which they are sensitive, in the same manner as animal and pollen proteins.

The specific protein treatment outlined above should relieve about 80% of sensitive bronchial asthmas, and another 10% should be relieved with the vaccines.

For non-sensitive or asthmatic bronchitis cases, autogenous or mixed stock vaccine is the best treatment, and good results follow in at least two-thirds of the cases.

3018 *Semmes Avenue.*

DISCUSSION.

Dr. J. M. Hutcheson does not believe that in practice, the diagnosis of asthmatic bronchitis from true asthma is easy. The proper study of asthma cases for protein sensitization requires a considerable outlay of expense and time, as the possible proteins used may number as high as 150. All cases cannot be helped, but, occasionally, gratifying results are accomplished. In the non-sensitive and in many sensitive cases vaccines are of tremendous help and there is no more satisfactory treatment except where the causative protein is determined and readily eliminated.

He does not believe that benzyl benzoate is nearly so valuable a palliative as atropine. No treatment can be regarded as curative. Most so-called cured cases relapse. It is a question as to whether prolonged abstinence from the causative protein produces immunization.

Dr. Hutcheson is of the opinion that in the future a number of cases now found to be non-sensitive to proteins will be shown to be sensitive to certain bacterial proteins. It is also probable that many cases of eczema, urticaria and angio-neurotic edema are the result of protein sensitization.

Dr. W. H. Higgins reported a case of rather uncommon type so far as age is concerned. The patient, a man, aged 50 years, when seen a year ago, had had asthma almost continuously for twenty years. Dr. Higgins started treatment upon the assumption that the cause was bacterial, and gave autogenous vaccines over a long period, but without result. Stock vaccines were likewise unsuccessful. The patient was then found to be exceedingly sensitized to wheat, and withdrawal of this article of food caused abrupt cessation of the asthma. He remained free for eight months when the attacks returned, showing that withdrawal of the sensitizing protein is not always sufficient.

Dr. Higgins agrees with Dr. Hutcheson regarding benzyl benzoate. He has given it in doses as large as one dram every four hours without benefit. Vaccines are indicated in a large number of these cases, and should be given in conjunction with protein injections.

Dr. Garnett Nelson warned against dwelling too much on general bacterial, or protein infection. It was contended at one time that bronchial asthma occurred only in the presence of pulmonary tuberculosis. This idea has been abandoned to a great extent, though some still hold that the reason asthma occurs is because of a chronic condition somewhere. There is no doubt that in a large number of patients whose sensitization returns or who are sensitized by something else, there is syphilis present. No asthmatic case should be studied without taking these into account or some mechanical disturbance whose existence may be in the nose, ears, eyes or elsewhere. For example, a negro, aged 47, had been treated by every known method over a period of several years, but unsuccessfully. A careful study of the chest showed mediastinitis with aortic dilatation. Wassermann was 4 plus. Treatment directed to these conditions, without regard to the asthma, resulted in recovery.

Dr. Shelton, closing the discussion, said he was wondering if the asthma in the case cited by Dr. Nelson were not a symptom, and not a typical instance of the disease.

The Truth About Medicine

During September the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion in New and Non-Official Remedies:

United Synthetic Chemical Corporation:

20 per cent. aromatized suspension made from benzyl benzoate (Van Dyk and Co.).

The Heyden Chemical Works:

Proganol.

Change of Agencies.

Arheol and Riodine. The Council has directed that the description of Arheol (New and Non-official Remedies, 1920, p. 251) and Riodine (Jour. A. M. A., Aug. 14, 1920, p. 477) be revised to state that these products are manufactured by P. Astier Laboratories, Paris and New York, and are distributed by Geo. J. Wallau, Inc., New York.

Benzyl Alcohol (Van Dyk and Co.):

Benzyl Benzoate (Van Dyk and Co.): The Council has directed that the description of benzyl alcohol—Van Dyk and Co., (New and Non-official Remedies, 1920, p. 28), and benzyl benzoate—Van Dyk and Co., (New and Non-official Remedies, 1920, p. 50), be revised to indicate that the United Synthetic Chemical Corporation is the distributor of these products.

Official Articles Not Within the Scope of New and Nonofficial Remedies.

Capsules Folia-Digitalis (Upsher Smith):

Tincture of Digitalis (Upsher Smith): These products are sold by Upsher Smith, St. Paul, Minn. The Council finds that they have the status of official articles and are, therefore, not within the scope of New and Non-official Remedies.

NEW AND NONOFFICIAL REMEDIES.

Sodium Arsphenamine, — Sodium Arsenphenolamine.—The sodium salt of 3-diamino—4-dihydroxy—1-arsenobenzene with a stabilizing medium. The arsenic content of three parts of sodium arsphenamine is equivalent to two parts of arsphenamine. Sodium arsphenamine has the same actions and uses as those of arsphenamine; its advantage over arsphenamine is that it does not require addition of alkali before use. To prepare the solution the sodium arsphenamine is added to the required amount of sterile water and dissolved by gentle agitation.

Sodium Diarsenol—A brand of sodium arsphenamine. Sodium diarsenol is marketed in ampules containing 0.15 Gm., 0.3 Gm., 0.45 Gm., 0.6 Gm., 0.75 Gm., and 0.9 Gm., respectively. Diarsenol Laboratories, Inc., Buffalo, N. Y.

Corpus Luteum Tablets-Armour 5 grain.—Each tablet contains 5 grains of desiccated corpus luteum-Armour (see New and Nonofficial Remedies, 1920, p. 203) (Jour. A. M. A., Sept. 18, 1920, p. 815).

PROPAGANDA FOR REFORM.

More misbranded nostrums and drug products.—The following products have been the subject of prosecution under the federal Food and Drugs Act: Beecham's Pills were held misbranded because the curative claims made for them were false and fraudulent, and because the pills were not made in England as claimed. Pike's Liver, Kidney and Stomach Remedy, because the therapeutic claims were false and fraudulent. Ergot Apiol Compound (Evans Drug Co.), because the capsules did not contain the claimed amounts of drug and because they were an imitation. Prescription 1000, sold in two forms, a copaiba preparation for internal use and a dilute potassium permanganate solution for external use, was sold under false and fraudulent therapeutic claims. Rival Herb Tablets were tablets falsely claimed to be chocolate coated and sold under false and fraudulent therapeutic claims. Wilson's Solution Anti-Flu consisted essentially of oil of eucalyptus, methyl salicylate and thymol or oil of thyme, and was falsely claimed to be effective as a remedy for influenza, colds and grippe. Castor Oil Capsules (Evans Drug Co.), did not contain the amount of drug claimed (Jour. A. M. A., Sept. 4, 1920, p. 690).

Prevention of Goiter.—The latest report on the prevention of goiter by administration of sodium iodid by Marine and Kimball—an investigation carried out under a grant from the Therapeutic Research Committee of the Council on Pharmacy and Chemistry—indicates a striking difference between those girls not taking and those taking iodin. The difference is manifested both in the prevention of enlargement and in a decrease in the size of existing enlargements. Of 2,190 pupils taking 2 gm. of sodium iodid twice yearly, five have shown enlargement of the thyroid, while of 2,305 pupils not taking the prophylatic, 495 have shown enlargement of the thyroid. Of 1,182 pupils with thyroid enlargement at the first examination who took the prophylactic, 773 thyroids decreased in size, while of 1,048 pupils with thyroid enlargement at the first examination who did not take the prophylactic, 145 thyroids decreased in size (Jour. A. M. A., Sept. 4, 1920, p. 674).

Using Unfit Ether.—In the case of Moehlenbrook versus Parke, Davis and Company et al, the Supreme Court of Minnesota denied the surgeons who had administered the ether a new trial, after a verdict had been entered against both the manufacturer and the surgeons. The Supreme Court holds that for the death which resulted from the use of the unfit ether both the manufacturer and the surgeons were responsible. The surgeons were held to be negligent in administering to a patient ether that was unfit for use and in their care after the ether was administered. (Jour. A. M. A., Sept. 11, 1920, p. 763).

Lyko.—This is an alcoholic tonic which has been widely advertised in the newspapers. It is put out by the Lyko Medicine Co., Kansas City, Mo. Lyko is claimed to stimulate the appetite, tone up the digestive organs and to have laxative qualities. It is said to contain caffein, kola, phenolphthalein and cascara sagrada. The advertising does not discuss the most powerful ingredient, alcohol, although the label declares the presence of 23 per cent. of this drug. As a result of an exhaustive examination, the A. M. A. Laboratory concludes that Lyko is essentially a sweetened solution containing about 22.2 per cent of alcohol together with insignificant amounts of caffein, cascara extractives and phenolphthalein. There was no evidence to show that the product is sufficiently medicated to prevent its being used as a beverage (Jour. A. M. A., Sept. 11, 1920, p. 757).

Nature's Creation.—This is one of the fake consumption cures. It was originally put on the market as an absolute cure for syphilis. When analyzed in the A. M. A. Laboratory it was found to be essentially a solution of potassium iodid in a weakly alcoholic medium containing vegetable extractives and flavoring matter, and small quantities of inorganic salts (Jour. A. M. A., Sept. 11, 1920, p. 758).

Iodex, A Misbranded Iodin Ointment.—(1) Claim: 5 per cent. iodin. Finding: iodin content only about 3 per cent. (2) Claim: free iodin. Finding: no free iodin. (3) Claim: absorbed through the skin, iodin can be found in urine 30 minutes after inunction. Finding: the assertion that iodin can be found in the urine after Iodex has been rubbed on the skin has been experimentally disproved. The preceding is taken from a poster of the A. M. A. Chemical Laboratory at the A. M. A. New Orleans meeting (Jour. A. M. A., Sept. 18, 1920, p. 830).

Diabetic Foods.—A report from the Connecticut Agricultural Experiment Station on diabetic foods includes not only the content of carbohydrate in these products but also that of protein and fat in view of the recognized necessity of taking into account of all the nutrients in any proper formulation of regimen for the diabetic patient. There is no satisfactory definition of what a diabetic food is, nor is there any universal diabetic food. The value of accurate information regarding the make-up of such products as may find special application in the dietotherapy, such as given in the Connecticut report, lies in the fact that it enables clinicians and the patient to proceed intelligently in the direction of diet planning with a view to tolerance of all the nutrients. Of particular interest in the report are the analyses of bran, which is being widely used at present to give bulk to the food residues in the alimentary canal. It ap-

pears that common, unwashed bran frequently contains no more than half as much starch as some of the advertised brands of "health" bran (Jour. A. M. A., Sept. 18, 1920, p. 818).

Calcidin Tablets-Abbott.—Calcidin is claimed to be a mixture of iodin, lime and starch. In contact with water, the iodin and lime react to form calcium iodid and calcium iodate. By the acid of the gastric juice, the calcium iodid and calcium iodate are decomposed with liberation of free iodin. The administration of calcidin tablets amounts to giving free (elementary) iodin. The effects produced by the administration of free iodin appear not to differ from those produced by the administration of iodids, and, therefore, calcidin has no advantage over the iodids, such as sodium iodid (Jour. A. M. A. Sept. 25, 1920, p. 892).

Some Misbranded Venereal Nostrums.—The following preparations have been the subject of prosecution by the federal authorities under the Food and Drugs Act on the ground that the therapeutic claims which were made for them were false and fraudulent: Injection Cadet (E. Fougera & Co., New York), a dilute watery solution of copper sulphate and unidentified plant material. Knoxit Injection (Beggs Manufacturing Co., Chicago), a solution of zinc acetate with alkaloids of hydrastis, in glycerin and water. Knoxit Liquid, a solution of zinc acetate with alkaloids of hydrastis, in glycerin and water. Knoxit Globules, essentially a mixture of volatile and fixed oils and oleoresins, including copaiba balsam, cinnamon and cassia. Grimault's Injection (E. Fougera & Co., New York), a weak watery solution of copper sulphate and plant extractives, probably matico. Halz Injection (Edw. Price Chemical Co., Kansas City, Mo.), consisting essentially of zinc sulphate, boric acid, glycerin, traces of alum and formaldehyd and water. Tablets which seem to go with the product consisted essentially of calcium and magnesium carbonates, copaiba, a laxative plant drug, plant extractives, a small amount of an unidentified alkaloid, sugar and starch. Noxit (Frederick F. Ingram Co., Detroit), consisting essentially of opium, berberine, a zinc salt, glycerin, alcohol and water. Crossmann Mixture (Wright's Indian Vegetable Pill Co., New York City), essentially an alcoholic solution of volatile oils, including balsam copaiba and cubebs. Santal-Pearls (S. Pfeiffer Mfg. Co., St. Louis, Mo.), consisting essentially of a cinnamon-flavored mixture of santal oil and copaiba. Cu-Co-Ba-Tarrant (Tarrant Co., New York City), consisting essentially of a mixture of extract of cubebs and copaiba with magnesium oxid. Hygienic and Preservative Brou's Injection (E. Fougera & Co.), consisting essentially of acetates and sulphates of zinc and lead, morphin, water and a very small amount of alcohol (Jour. A. M. A., Sept. 25, 1920, p. 891).

Public Health

Plans For Research Work.

The State Corporation Commission granted, in the present year, a charter for an incorporation which promises ultimately to do research work in tuberculosis in Virginia. The style of the corporation is "Tuberculosis Foundation of Virginia, Incorporated," and since it is modeled along the lines of the Trudeau Foundation of New York State, it should be of interest to members of the profession. This fact is responsible for the following explanation of the Foundation and its aims.

Affairs of the Foundation are handled by a board of trustees, five in number, under the chairmanship of C. Francis Cocke, of Roanoke, Va. One of the immediate purposes of the corporation is to provide funds for the sanatorium care of indigent consumptives, patients whose money gives out before they complete their course of treatment to that point at which they are enabled to return to work, or before they are returned to that degree of health their condition permits.

The articles of incorporation provide also that the Foundation may undertake research work looking to the eradication, cure and treatment of tuberculosis in Virginia, an aim which gives potentially a great field to work it might do.

One of the features of the plan announced by the incorporators is the permanence of the Foundation. All money received by the Foundation is to be invested, and only the interest will be available for the purposes named in the charter. The principle, once invested, is to be held in perpetuity. It is intended, by this provision, to insure the growth of the Foundation and to guarantee, as nearly as possible, that its power of service will be steadily increased with the passing years.

This statement of purposes has found sympathetic response from those interested in public health work in the State, to whose attention it has been brought.

Trustees of the Foundation point out that the Foundation fits into the campaign for better health in Virginia without conflict so far as any existing health agencies are concerned. Its purpose is to work always in co-operation with existing health agencies and its charter provisions make clear that the work of the Foundation is intended to supplement the activities of existing organizations devoted to anti-tuberculosis efforts.

Although chartered since the first of the year—the organization meeting was held in late March of the present year—the Foundation has already been made the beneficiary in several bequests, notice of which has been re-

ceived and has also received a gratifying number of cash donations.

The trustees are personally interested in the fight against tuberculosis and are giving a good deal of time to establishing the Foundation on a solid basis. They serve without pay and all expenses of the corporation have been paid so far by gifts from the trustees themselves. The treasurer of the Foundation is Mr. A. Lambert Martin, business manager of Catawba Sanatorium, Catawba Sanatorium, Va.

General Hospitals and Tuberculosis.

It should be noted—in connection with the reference in this department last month to tuberculosis wards in general hospitals—that a number of general hospitals in the State have already provided wards for tuberculosis cases. In two cities general hospitals have tuberculosis wards, and in one at least special provision is made for taking surgical cases developing among tuberculosis patients.

Since the article appearing last month was written, a visit has been made to the tuberculosis ward of Bellevue Hospital, in New York City, which is interesting because in line with what was urged in this department of the *Virginia Medical Monthly*. It is also worthy of note that in Massachusetts a large general hospital has definitely adopted a policy of segregation for its cases, establishing wards for each of a number of diseases. This would seem to be an ideal arrangement, and one that would develop naturally from an initial move looking to the reception and treatment of tuberculosis cases in general hospitals.

The idea has in it much to commend itself to the practitioner as well as to the patient, lending itself so readily, as it does, to the better study of each disease, as well as to the specialized treatment of each disease following segregation of patients.

Christmas Seal Sales.

Dr. Roy K. Flannagan, executive secretary of the Virginia Tuberculosis Association, made an earlier start this year than ever before in the campaign for Christmas sale of anti-tuberculosis seals. These seals have been sold in former years for the National and State Tuberculosis Associations in co-operation with the Red Cross. This year, the seals are being handled by the tuberculosis associations alone. Through this source funds for the state association are raised, and its success is largely dependent upon the success of the seal sale campaign. Doctor Flannagan has had gratifying success in placing supplies of seals throughout the state, but if there are communities in which arrangements have not been made, he would like for local physicians or others interested to communicate with him.

B. L. Taliaferro.

The Bacteriological Laboratory of the State Board of Health

September 30th completed its first fiscal year under its present management. The comparative table given below will show how rapidly the work has grown in both scope and numbers.

	Oct. 1, 1918 to Sept. 30, 1919	Oct. 1, 1919 to Sept. 30, 1920
Tuberculosis	1169	1320
Diphtheria	624	1591
Typhoid		
Widal	982	825
Blood Culture	0	31
Malaria	113	337
Gonorrhea	0	537*
Wassermann	2323	9308
Rabies	0	82
Miscellaneous	109	55
Intestinal Parasites	1812	2239
Total Diagnostic	7132	16,325
Water		
Bacteriological	1158	1800
Chemical	14	36
Total Examinations	8304	18,161

*Previously included with miscellaneous.

Through the courtesy of Dr. H. S. Thatcher, Professor of Pathology of the Medical College of Virginia, free examinations will now be made of tissue from all patients unable to pay for such an examination. A statement to this effect must accompany each specimen.

Aubrey H. Straus.
Bacteriologist, State Laboratory.

Analyses, Selections, Etc.

The Clinical Application of the Carrel-Dakin Method to Cases of Acute Appendicitis Requiring Drainage.

Elbert T. Rulison, Sacramento, Cal., states

that from a review of 263 cases of appendicitis treated at the Presbyterian Hospital during the years 1915-18, we find that under methods of simple drainage there was a failure in 38% to preserve in a satisfactory manner the important tissues of the abdominal wall. These tissues usually free at the time of operation become extensively contaminated during an appendectomy with drainage of a peritoneal abscess. It was found in the cases reviewed that the average period of suppuration was 15.4 days and average hospital stay 28 days, with fæcal fistula in 7.5 per cent and a mortality of 9.1 per cent.

Aside from the 18 cases treated by the author which form the basis of this report, this method has been employed by others in 13 cases of appendicitis requiring drainage.

Before attempting the application of Dakin's Fluid to appendiceal infections, the following conclusions had been reached:

1. Suture material is not affected by small repeated injections.

2. Fibrous deposits occur, adhesions remain effective, healing of intestinal wounds may occur after repeated injections.

3. The use of this antiseptic must be restricted to the treatment of the drainage tracts after the period of walling off has occurred as severe pain and shock attended the introduction into the free peritoneal cavity.

4. Less slough and less foul discharge were noted in cases treated by Dakin's. Attention in the 18 cases has been directed especially to the course of the wound infection, noting the influence of this antiseptic in preserving the abdominal wall tissues and in altering the course of suppuration. The bacteriology was studied to see the feasibility of secondary suture of the wound.

Description of the Method: No essential change has been made in the operative technique. A straight drainage tract is essential; this can always be obtained through a stab wound in the loin. The drainage tube used is a modification of the double arm tube devised by Dr. Blake. Two separate tubes are used and their beveled edges are held together by an untied loop of plain catgut. One tube is fenestrated. A strip of narrow gauze packing moistened with 5% Dichloramine-T in Chloracosane is placed in the fenestrated tube. The drainage tubes must be long enough to project an inch beyond the skin.

The peritoneum in closed with continuous plain catgut and the small triangular spaces around the tubes are closed by inserting narrow strips of vaseline gauze. The wound is now sponged with Dakin's fluid and the transversalis and internal oblique loosely united with plain catgut interrupted. The aponeurosis of external oblique is closed with interrupted catgut and the skin with silkworm. The skin is now lifted and a 5 c. c. Carrel tube inserted into each angle of the wound lying along the sutured aponeurosis. A separation type of dressing is used consisting of a few vaseline strips next to the skin, a few gauze compresses and then a Carrel pad through all of which the drainage tubes extend. The Carrel tubes to the aponeurosis lie flat on the skin surface and are held in place by adhesive. Five c.c. of Dakin's fluid is injected into each Carrel tube before patient leaves the table and a similar amount every two hours night and day.

Post-Operative Care of the Wound: First dressing is done in from twelve to twenty-four hours at which time all dressings are removed and fresh ones applied and a fresh wick of 5% Dichlororamine-T is inserted into the same tube and 1 to 2 c.c. of the same solution dropped into the closed tube. Second dressing:—If within thirty-six hours, the procedure of first is repeated but, if from 48 to 60 hours, all dressings are removed and also the closed drainage tube. The fenestrated tube is shortened 1 inch and 5 c.c. Dakin's fluid warmed to 100 F. is gently injected and repeated every two hours. If there is any evidence of pain, reaction several hours a day should elapse before attempting another injection.

Subsequent dressings: It is desirable to remove drainage tubes as soon as commensurate with safety; this is usually done from the third to the fifth day by introducing a small rubber catheter through the lumen of the tube and withdrawing it, the catheter being left in the wound. The amount of Dakin's fluid used is rapidly increased to 10 c.c. and the Carrel tubes are removed as soon as the discharge becomes negligible. Sutures are removed at the end of a week. Smaller catheters may be substituted at any time when there is indication that the tract is closing down too tightly about the original instillation catheter. In most cases we have observed this precaution about the eighth or ninth day. Daily bacterial

counts have been made in all cases and while not essential they are an aid in a nicer determination of the condition of the wound. That secondary closure by suture is neither feasible nor safe has been a disappointment and while it is theoretically possible that by continued injections of Dakin's fluid the infected cavity might eventually approach nearly enough a sterile condition to permit a successful closure of the skin, the time element involved renders such attempts apparently futile. The instillation catheters are removed as soon as the wound ceased to show signs of suppuration.

RESUME OF THE POST-OPERATIVE WOUND TREATMENT.

The average time for removal of closed tube and replacement by smaller drain was 2.6 days.

Dakin's fluid was used on an average of nine days in the superficial wounds, the average amounts being 10 c.c. every two hours.

Average time at which Dakin's fluid was introduced into the deep drainage tract was 65 hours after operation.

Dakinization of the deep tract was discontinued at an average of 13.6 days. The average amounts used varied from 2 to 10 c.c.

5% Dichloramine-T was used at operations and during first 48 hours in 15 cases.

No measures to improve drainage necessary in any of these cases.

Average time when all dressing was stopped was 13.8 days.

The average duration of odoriferous discharge was 6 days.

In only one case was there wound infection.

Suppuration ceased and wounds were entirely free of slough in 10.9 days.

Closure of wound attempted in 5 cases with 3 successes and 2 failures, gradual closing by strapping with adhesive being the rule.

Only serious complication was a mechanical ileus due to tube pressure.

The condition of wounds on discharge was as follows: Healed two cases, healed with clean crusts two, small granulating areas flush with skin surface six, large granulating area one, with shallow sinus six. Only one had a weak wall. Average hospital stay was 24.1 days. Sixteen cases have been followed up over a period of two to six months with no symptomatic failures. Anatomical results excellent in 12 cases with two hernias.

The contrast to the cases treated by simple drainage or by daily irrigation has been sharp, the period of discharge of foul smelling pus with shreds of slough from abdominal wall or abscess cavity in all cases being greatly lessened and in some cases minimized to a striking degree. There have been no fæcal fistulae, no serious accidents have attended the use of Dakin's fluid intra-abdominally nor have the patients suffered pain reactions following injections except in two late cases. The patients have been discharged with better wounds and follow-up results indicate that the percentages of hernia will be materially decreased. In conclusion, emphasis should again be laid upon the necessity of thoroughly mastering the details as well as the principles underlying the introduction of such antiseptics as Dakin's fluid into deep infected abdominal drainage tracts.—*(Surg. Gynec. and Obstet.)*

Case of Spontaneous Hemo-Pneumothorax Following Artificial Pneumothorax.

Heise and Krause report the following case which occurred in the service of the Trudeau Sanatorium: A man, aged 21, entered the sanatorium on September 21, 1914, with hemoptysis and pain in his chest, his only symptoms, and with signs so few and indefinite that diagnosis at first was only tentative. He did well for several months, but toward the end of the winter his condition became less favorable. By March, he was continually febrile and was having more hemoptyses. Meanwhile, his signs indicated a slight stationary process, while the X-ray showed markedly progressing involvement. Signs remained equivocal until May 7, when they suddenly cropped out and showed consolidation below the 3rd rib and 5th v. s. on the left side. Between September and May frequent sputum examinations had been uniformly negative; but, on May 27 the fifty-sixth examination was positive for the first time. By this time the patient was gravely ill. On June 2 artificial pneumothorax was performed. The next day, after raising himself in bed, the patient suddenly experienced a sharp stabbing pain in his left side and soon became extremely ill. Application disclosed blood in the thorax. The patient went into collapse and died fourteen hours after the rupture of his lung.

At autopsy it was found that the pneumothorax needle had not injured the patient's lung. On the anterior surface near the caudal

tip was a tear of the pleura over a small cavity and close to a short and very thick adhesion. The entire left lung was involved with a caseating process that was cavitating at numerous places. The left thoracic cavity contained about two litres of clotted blood,—(Amer. Rev. Tuber., Vol. III, No. 12.)

Medical Education

Reconstruction.*

The necessity of a reconstruction that will at once reduce the number and improve the output of medical schools may now be taken as demonstrated. A considerable sloughing off has already occurred. It would have gone further but for the action of colleges and universities which have by affiliation obstructed nature's own effort at readjustment. Affiliation is now in the air. Medical schools that have either ceased to prosper, or that have become sensitive to the imputation of proprietary status or commercial motive, seek to secure their future or to escape their past by contracting an academic alliance. The present chapter undertakes to work out a schematic reconstruction which may suggest a feasible course for the future. It is not supposed that violent measures will at once be taken to reconstitute the situation on the basis here worked out. A solution so entirely suggested by impersonal considerations may indeed never be reached. But legislators and educators alike may be assisted by a theoretical solution to which, as specific problems arise, they may refer.

This solution deals only with the present and the near future,—a generation, at most. In the course of the next thirty years needs will develop of which we here take no account. As we cannot foretell them, we shall not endeavor to meet them. Certain it is that they will be most effectively handled if they crop up freely in an unencumbered field. It is therefore highly undesirable that superfluous schools now existing should be perpetuated in order that a subsequent generation may find a means of producing its doctors provided in advance. The cost of prolonging life through this intervening period will be worse than wasted; and an adequate provision at that moment will be embarrassed by inheritance and tradition. Let the new foundations of that distant epoch enjoy the advantage of the Johns Hopkins, starting without handicap at the level of the best knowledge of its day.

The principles upon which reconstruction would proceed have been established in the course of this report: (1) a medical school is properly a university department; it is most favorably located in a large city, where the problem of procuring clinical material, at once abundant and various, practically solves itself. Hence those universities that have been located in cities can most advantageously develop medical schools. (2) Unfortunately, however, our universities have not always been so placed. They began in many instances as colleges or something less. Here a supposed solicitude for youth suggested an out-of-the-way location; elsewhere political bargaining brought about the same result. The state universities of the south and west, most likely to enjoy sufficient incomes, are often unfortunately located: witness the University of Alabama at Tuscaloosa, of Georgia at Athens, of Mississippi at Oxford, of Missouri at Columbia, of Arkansas at Fayetteville, of Kansas at Lawrence, of South Dakota at Vermilion; and that experience has taught us nothing is proved by the recent location of the State University of Oklahoma at Norman. Some of these institutions are freed from the necessity of undertaking to teach medicine by an endowed institution better situated; in other sections the only universities fitted by their large support and their assured scientific ideals to maintain schools of medicine are handicapped by inferiority of location.

We are not thereby justified in surrendering the university principle. Experience, our own or that of Germany, proves, as we have already pointed out, that the difficulty is not insuperable. At relatively greater expense, it is still feasible to develop a medical school in such an environment: there is no magnet like reputation; nothing travels faster than the fame of a great healer; distance is an obstacle readily overcome by those who seek health. The poor as well as the rich find their way to shrines and healing springs. The faculty of medicine in these schools may even turn the defect of situation to good account; for, freed from distraction, the medical schools at Iowa City and Ann Arbor may the more readily cultivate clinical science. An alternative may indeed be

* From the Carnegie Foundation for the Advancement of Teaching, Bulletin Four, 1910.

tried in the shape of a remote department. The problem in that case is to make university control real, to impregnate the distant school with genuine university spirit. The difficulty of the task may well deter those whose resources are scanty or who are under no necessity of engaging in medical teaching. As we need many universities and but few medical schools, a long-distance connection is justified only where there is no local university qualified to assume responsibility. A third solution—division—may, if the position taken in previous chapters is sound, be disregarded in the final disposition.[1]

(3) We shall assign only one school to a single town. As a matter of fact, no American city now contains more than one well supported university,[2]—and if we find it unnecessary or impolitic to duplicate local university plants, it is still less necessary to duplicate medical schools. The needless expense, the inevitable shrinkage of the student body, the difficulty of recruiting more than one faculty, the disturbance due to competition for hospital services, argue against local duplication. It is sometimes contended that competition is stimulating: Tufts claims to have waked up Harvard; the second Little Rock school did undoubtedly move the first to spend several hundred dollars on desks and apparatus. But competition may also be demoralizing; the necessity of finding students constitutes for medical schools which ought to elevate standards the main obstacle to their elevation: witness the attitude of several institutions in Boston, New York, Philadelphia, Baltimore, and Chicago. Moreover, local competition is a stimulus far inferior to the general scientific competition to which all well equipped, well conducted, and rightly inspired university departments throughout the civilized world are parties. The English have experimented with both forms,—a single school in the large provincial towns, a dozen or more in London,—and their experience inclines them to reduce as far as possible the number of the London schools. Amalgamation has already taken place in certain American towns: the several schools of Cincinnati, of Indianapolis, and of Louisville have all recently "merged." This step is easy enough in towns where there is either no university or only one university. Where there are several, as in Chicago, Boston, and New York, the problem is more difficult. Approached in a broad spirit it may, however, prove not insoluble; co-operation may be arranged where several institutions all possess substantial resources; universities of limited means can retire without loss of prestige,—on the contrary, the respect in which they are held must be heightened by any action dictated by conscientious refusal to continue a work that they are in no position to do well.

(4) A reconstruction of medical education cannot ignore the patent fact that students tend to study medicine in their own states, certainly in their own sections. In general, therefore, arrangements ought to be made, as far as conditions heretofore mentioned permit, to provide the requisite facilities within each of the characteristic state groups. There is the added advantage that local conditions are thus heeded and that the general profession is at a variety of points penetrated by educative influences. New Orleans, for example, would cultivate tropical medicine; Pittsburgh, the occupational diseases common in its environment. In respect to output, we may once more fairly take existing conditions into account. We are not called on to provide schools enough to keep up the present ratio. As we should in any case hardly be embarrassed for almost a generation in the matter of supply, we shall do well to produce no doctors who do not represent an improvement upon the present average.

The principles above stated have been entirely disregarded in America. Medical schools have been established regardless of need, regardless of the proximity of competent universities, regardless of favoring local conditions. An expression of surprise at finding an irrelevant and superfluous school actually elicits the reply that the town, being a "gateway" or a "center," must of course harbor a "medical college." It is not always easy to distinguish "gateway" and "center": a center appears to be a town possessing, or within easy reach of, say 50,000 persons; a gateway is a town with at least two railway stations. The same place may be both,—in which event the argument is presumably irrefragable. Augusta, Georgia, Charlotte, North Carolina, and Topeka, Kansas, are "centers," and as such are logical abodes of medical instruction. Little Rock,

1 We shall omit the half-school because it may be considered to divide with the whole school the work of the first two years; it does not greatly affect the clinical output, with which this chapter is mainly concerned.

2 Chicago is almost an exception, as Northwestern University is situated at Evanston, a suburb.

St. Joseph, Memphis, Toledo, Buffalo, are "gateways." The argument, so dear to local pride, can best be refuted by being pursued to its logical conclusion. For there are still forty-eight towns in the United States with over 50,000 population each, and no medical schools: we are threatened with forty-eight new schools at once, if the contention is correct. The truth is that the fundamental, though of course not sole, consideration is the university, provided its resources are adequate; and we have fortunately enough strong universities, properly distributed, to satisfy every present need without serious sacrifice of sound principle. The German empire contains eighty-four cities whose population exceeds 50,000 each. Of its twenty-two medical schools, only eleven are to be found in them: that is, it possesses seventy-three gateways and centers without universities or medical schools. The remaining eleven schools are located in towns of less than 50,000 inhabitants, a university town of 30,000 being a fitter abode for medical study than a non-university town of half a million, in the judgment of those who have best succeeded with it.

We have calculated that the south requires for the next generation 490 new doctors annually, the rest of the country, 1500. We must then provide machinery for the training of about 2000 graduates in medicine yearly. Reckoning fatalities of all kinds at ten per cent. per annum, graduating classes of 2000 imply approximately junior classes of 2200, sophomore classes of 2440, freshman classes aggregating 2700,—something over 9000 students of medicine. Thirty medical schools, with an average enrollment of 300 and average graduation classes of less than 70, will be easily equal to the task. As many of these could double both enrollment and output without danger, a provision planned to meet present needs is equally sufficient for our growth for years to come. It will be time to devise more schools when the productive limit of those now suggested shall come in sight.

Public Health Service Leases Altamont Hotel.

The U. S. Public Health Service has leased the Altamont and Avenel Hotels, adjoining Fort Thomas, near Newport, Ky., across the river from Cincinnati. The Altamont is to be used as a general hospital for the seventh district of the Public Health Service, which comprises the States of Ohio, Indiana, and Kentucky. The Avenel, which is ten minutes' walk from the Altamont, will serve as quarters for the hospital staff.

The Altamont is beautifully located on a bluff overlooking the river. It is in good condition and can be occupied at once for non-operative cases, while certain necessary improvements are being made. An important feature of the hospital will be its bathing facilities. For some years mineral waters from springs in the vicinity have been utilized, with or without electricity, in baths for the hotel. Their therapeutic value has long been recognized. The hospital will have about 200 beds.

War Department Sells Remaining Surplus of Hospital Bandages and Absorbent Cotton.

The Surplus Property Branch, Office of the Quartermaster General of the Army, has sold to Thomson & Kelly Co., of Boston, the remaining surplus of bandages and absorbent cotton, purchased for the use of the army during the war. The sale netted the Government more than $1,000,000. The bandages alone represent a quantity sufficient to supply the hospitals and surgeons of the United States with all their needs for at least 18 months. The Boston firm was the highest of a number of bidders for these items. Included in the sale were a million dozen roller and between two and two and one-half million compressed bandages, and approximately 2,250,000 one-ounce packages of absorbent cotton.

Secretary's Announcement

Magazine Subscription Service.

Concentrating the magazine subscription business of the members of the Medical Society of Virginia in the office of the publication of the journal will mean a great convenience to our members and the small commissions allowed by the publishers will furnish additional revenue needed badly at this time. November and December are the two best months of the year for this business and physicians are requested to look over their magazines and send their renewals through this office. We can get for you any magazine published and at the regular rates.

Put on the table in your reading room the magazines which will keep your patients interested while waiting their turn—get the magazines which will bring relaxation to yourself—get the magazines which your family loves to read. On the advertising pages of this issue is a selected list of magazines which will easily satisfy all of these needs. Whatever you get—get it through the Virginia Medical Monthly.

Proceedings of Societies

MEDICAL SOCIETY OF VIRGINIA.

Report of Executive Council.

The Executive Council begs to make the following report:

Acting upon the following resolutions of the House of Delegates, at the 1919 meeting,

1. That the Society purchase the Virginia Medical Monthly at the price of $1,000.00;

2. That the journal be published monthly by the Society and sent free to each member; and,

3. That the Society employ a full-time man to act as Secretary-Treasurer of the State Society and Manager of the Journal and an assistant Manager of the Journal;

The Executive Council appointed Drs. B. R. Tucker, E. L. Kendig, and A. G. Brown, Jr., to carry out the provisions above referred to. Accordingly, at a subsequent date, this committee reported that they had secured the services of G. H. Winfrey as full-time Secretary-Treasurer and Business Manager and Miss Agnes Edwards as Assistant Business Manager. The Executive Council confirmed these appointments and these officers have been engaged during the year in the duties of the business of the Society at the offices, 104½ West Grace Street, Richmond, Virginia.

The duties of supervising and directing the work of the office have devolved upon the Publication Committee, as this committee, consisting of members of the Executive Council, except in the case of Dr. A. L. Gray, was called together more or less frequently to consider questions connected with the publication of the monthly journal.

The Executive Council had only one meeting during the year, and that related to the selection of time of meeting and the choice of subject and leaders of the symposium for the 1920 meeting, and some detail matters connected with the purchase of paper for the journal.

Respectfully submitted,

ALEX. G. BROWN, JR.,
Clerk.

Proceedings of the House of Delegates.

WEDNESDAY, OCTOBER, 27TH, 1920.

President, Dr. Irving, presiding. Roll call and quorum found present.

The reports of the Secretary-Treasurer of the Society and Business Manager of the Virginia Medical Monthly were read and approved. Dr. Preston, of Roanoke, brought to the attention of the House of Delegates the matter of the prosecution of Chiropractors and Poropractors in Roanoke by the legal authorities in that city. A motion was made by Dr. Leigh, of Norfolk, that the Executive Council be authorized, if in their judgment it seemed desirable, to employ an attorney to assist the State Board of Medical Examiners and to represent the State Society in these prosecutions, and that $200.00, or so much thereof as may be necessary, be appropriated for this purpose. This was unanimously adopted.

The Secretary-Treasurer reported on his efforts to secure automobile insurance for members of the society at lower rates than those charged by the old line companies. He recommended that for the present the members secure through their headquarters in Richmond automobile insurance including fire, theft, public liability and property damage on the basis of the return to the members insuring of thirty per cent of their premiums. Any compensation to the Secretary-Treasurer for this additional service should be left to mutual agreement between the company and the Secretary-Treasurer. This was unanimously adopted and recommended to the members of the society who desire to secure this form of protection.

The report of the chairman of the Legislative Committee was read and approved and the Secretary-Treasurer was instructed to pay the expense accounts of the chairman of this committee for his attendance on the meetings of the two sessions of the legislature amounting to two hundred ($200.00) dollars.

Dr. Williams, of Norfolk, offered a motion that the salary of the Assistant Manager of the Virginia Medical Monthly, Miss Edwards, be increased to $150.00 per month. Dr. Leigh, of Norfolk, offered as an amendment that in the event the compensation to the Secretary-Treasurer for handling the insurance of the members does not amount to $600.00 per year that his salary be increased to make his total annual remuneration $2600.00. This motion and amendment were unanimously approved. The matter of auditing the books of the Secretary-Treasurer was brought up and on the recommendation of the Secretary-Treasurer the Publication Committee was instructed to have the books audited by a competent auditor.

Dr. Peyser, of Richmond, brought to the attention of the House of Delegates the matter of members who have lost membership in local societies still retaining in some cases membership in the State Society. A motion was made by Dr. Leigh, of Norfolk, seconded by Dr. Flippin, of the University, that the Secretary-Treasurer accept the following interpretation of the society's constitutional provisions covering this point: That members of the State Society whose membership antedated the organization of their local component society did not forfeit their membership privileges by failure to join their local component society; but, that, having subsequently joined a local society they forfeited their state membership rights in case they lost or surrendered their local membership. It was also provided that if a member lost his state membership he thereby lost automatically his local membership.

THURSDAY, OCTOBER, 28TH, 1920.

A petition requesting authority to organize an Ophthalmic and Aural Section of the Medical Society of Virginia was presented by Drs. Clarence Porter Jones, James R. Gorman, James Morrison and Hunter H. McGuire. After considerable discussion by members it was referred to a committee of five of which Dr. Garnett Nelson was made chairman. This committee later reported as follows, the report being unanimously adopted: That a by-law be passed allowing any definite specialty in Medicine or Surgery to organize a section, to hold one or more meetings a year; provided the said section or sections should be composed of members of and under control of the Medical Society of Virginia and its annual meeting shall be at the same time and place as the annual meeting of the Medical Society of Virginia.

Dr. Williams, of Norfolk, brought to the attention of the House of Delegates the matter of securing such legislation as would be necessary to secure

for physicians who have passed the regular examination in one state to practice in any state without further examination. After considerable discussion it was referred to the next annual meeting of the State Society for settlement.

The work of the State Board of Health in its effort to establish in each county in the state a fulltime Health officer was unanimously endorsed by formal motion.

Dr. Preston, of Roanoke, offered the following resolution which was unanimously adopted: Resolved, that the Medical Society of Virginia express its appreciation of the work of the Bureau of Social Hygiene, of the State Board of Health, and pledge our co-operation.

The Committee on Medical Education in Virginia made the following report:

On account of the present status of the work of the Commission on Medical Education appointed by the Governor, in reference to the consolidation of the two state medical schools, your committee can not at present offer any definite report. We suggest that this committee be continued for further consideration of this question.

The House of Delegates voted unanimously to accept the invitation of the Lynchburg and Campbell County Medical Society, delivered by Dr. Carroll, of Lynchburg, to hold the next meeting of the Society in Lynchburg.

The report of the Executive Council containing the following recommendations, was offered to the House of Delegates:—

For President—Dr. A. L. Gray, of Richmond,

For First Vice-President—Dr. E. C. S. Taliaferro, of Norfolk.

For Second Vice-President—Dr. F. J. Wright, of Petersburg,

For Third Vice-President—Dr. Hunter H. McGuire, of Winchester.

Delegate and Alternate to the American Medical Association: Dr. J. T. Buxton, of Newport News, Dr. A. L. Tynes, of Staunton.

Honorary members of the State Society: Dr. Ennion G. Williams, of Richmond, and Dr. Paulus A. Irving, of Farmville.

Members of the Executive Council from the state at large: Dr. M. J. Payne, of Staunton, and Dr. H. A. Burke, of Petersburg. To represent the First Congressional District on the Executive Council, Dr. G. W. McAllister, of Hampton; the Third District, Dr. Garnett Nelson, of Richmond; the Tenth District, Dr. P. E. Tucker, of Buckingham.

Membership Committee, present incumbents;

Legislative Committee, present incumbents;

Publication Committee, present incumbents;

Necrological Committee, Dr. C. M. Edwards, of Richmond, Chairman, and Drs. S. T. A. Kent, of Ingram, and T. S. Sims, of Newport News;

Judiciary Committee, Drs. W. F. Drewry, Petersburg, Chairman, Virginius Harrison, Richmond, Hugh Nelson, Charlottesville, Frank Hancock, Norfolk, Bernard Kyle, Lynchburg, J. A. Owen, South Boston, and J. L. Early, Saltville. This report received the unanimous endorsement of the House of Delegates.

This report was read to the society as a whole and unanimously ratified.

The following resolution, presented by Dr. Isaac Peirce, of Tazewell, was unanimously adopted by the Society:—

Resolved, That the Medical Society of Virginia express its most hearty appreciation and thanks for the generous welcome extended to the Society by the profession, citizens and press of Petersburg, at this its fifty-first annual meeting It has been many years since the Society met in Petersburg, but we feel sure that we shall want to pay you another visit long before the good time you have given us is forgotten.

We want especially to thank the ladies of the committee for their generous welcome, the splendid entertainments, and good things to eat they have given the doctors and their wives during this visit; the Local Committee for the efficient way they have attended us and the unique entertainment they have provided; and the Public School authorities for the use of their splendid building and the uniform courtesy extended the members of the Society at all times.

Times have changed, but not in Petersburg, and you have shown us that good old Virginia hospitality is still with us. Long will we remember the welcome you have given us, the entertainments, and, above all, the way you have made us feel at home among you.

The Northern Neck (Va.) Medical Association,

At its annual meeting, recently held at Kilmarnock, elected Dr. H. J. Edmonds, Kilmarnock, president; Dr. M. C. Oldham, Lancaster, vice-president, and Dr. C. T. Peirce, Irvington, secretary-treasurer. Several interesting and instructive papers were read, after which a banquet was held.

The Roanoke Academy of Medicine,

At its regular meeting held the first week in October, unanimously elected the following officers for the ensuing year: President, Dr. G. M. Maxwell, Roanoke; Vice-Presidents, Drs. R. H. Garthright, Vinton, and R. M. Wiley, Salem; Secretary, Dr. J. T. McKinney, Roanoke; and Treasurer, Dr. T. D. Armistead, Roanoke.

Jos. T. McKinney,
Secretary.

The Isle of Wight County Medical Society

Was reorganized on October 12, at a meeting held at Smithfield, and Dr. Rea Parker, Smithfield, was elected president, and Dr. E. M. Easley, Rushmere, secretary-treasurer.

The Medical Review Of Reviews,

New York, will inaugurate a new department for the advancement of the science of Chemo-Therapy, beginning with the January issue. They invite the co-operation of all physicians, chemists, bacteriologists and pharmacologists, who are doing or contemplate doing work along this line, and will be glad to have contributions dealing with this science.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.

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PUBLISHED BY THE PUBLISHING COMMITTEE.

A. G. BROWN, Jr., M. D., Chairman, Richmond, Va.
B. R. TUCKER, M. D., Richmond, Va.
P. W. HOWLE, M. D., Richmond, Va.
E. L. KENDIG, M. D., Victoria, Va.
A. L. GRAY, M. D., Richmond, Va.

ALEX. G. BROWN, Jr., M. D., Editor.

G. H. WINFREY, Business Manager and Secretary-Treasurer.

AGNES V. EDWARDS, Editor's Assistant and Assistant Manager.

All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

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Editorial

The Petersburg Meeting.

To the Medical Faculty of the City of Petersburg the members of the Medical Society of Virginia in attendance at the recent meeting owe great thanks and appreciation for the extreme and thoughtful courtesies bestowed during the course of the sessions. The accommodations for the meetings at the Washington Street High School were commodious and adequate: the housing and home entertainment of members was in every way expressive of the complete hospitality shown on every hand by the local committee, the members of the Petersburg Medical Faculty, and the ladies; the special entertainments planned for the visiting doctors and their wives were extremely enjoyable and pleasurable.

The profession of Petersburg captivated their guests with their fine and generous hospitality and cordiality and made the workings of the sessions so orderly and smooth that the Petersburg meeting will be long remembered both for the warm and pleasant welcome as well as for the transaction of scientific sessions of high worth.

The Petersburg meeting was a great success!

The Absentee.

You missed it! The Petersburg meeting was fine! The papers were good; the discussions were up to standard. The program was promptly dispatched. The meeting was in the auditorium of the Petersburg High School and committee rooms and the hall for the House of Delegates were in the same building. The entertainments were extremely pleasant and enjoyable. Sorry you were not there. Some four hundred other members of the Society were present and they seemed to be highly pleased.

Next year the Society will meet in Lynchburg. The Lynchburg doctors intend to put forth a great effort to make the meeting as successful as the Petersburg meeting. Won't you come?

Dr. Paulus A. Irving.

You are an honorary member and Ex-President of the Medical Society of Virginia!

Your fellow physicians of the State of Virginia esteemed you so highly that you were chosen to head the Medical Society of Virginia for the year just past. You performed your duties and discharged your obligations with high satisfaction and credit. You have won through your years of service to the Medical Society of Virginia a high place in the affections and good-will of your co-laborers.

The President—Dr. A. L. Gray!

Dr. Alfred L. Gray, of Richmond, was unanimously elected president of the Medical Society of Virginia for the ensuing year. Dr. Gray well deserved the honor. For a number of years he has served the Society upon its Executive Council, working in season and out of season for its success and welfare. As chairman of the Executive Council for a number of years, the duty of piloting the affairs of the Society has fallen in his hands. He has always discharged these obligations with promptness, efficiency and success. This alone would seem sufficient reason for honoring him. But it was believed by the membership that, added to this excellent reason, Dr. Gray possessed those qualifications of mind and temperament which serve the Society well in the capacity of its chief executive. The Society expects a leader and an efficient executive who will bring its affairs to a high state of efficiency and success. Confidently, Dr. Gray is expected to measure up in every way to the standards of the Society's needs.

In addition, without transgressing the bounds of good taste, it may be said that the professional attainments of Dr. Gray, particularly in the domain of Roentgenology, are such

as to warrant the Medical Society of Virginia in conferring upon him the high honor of presidency.

Service to the Society, qualifications for the office, and professional attainments of a meritorious order and excellence, may be assigned for the grounds for the honor upon the new President.

Dr. Alfred Leftwich Gray comes of a family of professional men—for three consecutive generations there having been one doctor and one lawyer in his family. His father was the Honorable A. A. Gray, a prominent attorney of Fluvanna County, Virginia. His pre-college education was received at Fluvanna Central High School, Palmyra, Va.; he then entered the Academic Department of the University of Virginia. After three years there, he entered the Medical Department of the University, from which school he received his degree as doctor of medicine in 1897. His internship was served at the Pennsylvania Hospital, Philadelphia. Upon returning to Virginia, he located in Richmond and was elected professor of physiology, University College of Medicine. He was dean of the Medical Department of that school from 1909 until it merged with the Medical College of Virginia. Only recently he resigned as dean of the School of Medicine of the last named school. He was elected professor of Roentgenology in the Medical College of Virginia in 1916, which position he still holds and in which field he specializes. During the war, he had the rank of major in the Medical Officers' Reserve Corps, and was placed in charge of the Richmond School of Military Roentgenology.

Dr. Gray is a member of numerous medical associations. He has been president of the American Roentgen Ray Society and of the Richmond Academy of Medicine and Surgery; vice-president of the Southern Medical Association and of the Tri-State Medical Association of the Carolinas and Virginia, and ex-chairman of the Executive Council of the Medical Society of Virginia and also of the Legislative Committee.

House Of Delegates.

The House of Delegates functioned well this year. There was no hitch. The affairs of the Society were thoroughly discussed; the reports were heard and acted upon after discussion. The membership was requested to read carefully the reports of the committees and of the Secretary-Treasurer, and to note the business transacted. The financial report, in spite of the heavy cost of publishing the journal, showed the Society was in satisfactory condition, although delinquent members are yet too numerous. Of course, members who fail to pay the dues now can hardly expect to be carried.

Medical Education.

The members of the Medical Society of Virginia, reading this journal, are urged to glance over the column on MEDICAL EDUCATION in another part of the journal. Each month there will be seen here some extract, abstract, or compilation taken from writers of acknowledged authority on this subject.

The doctors of this State must feel that this is one of the greatest problems of the present.

Medical Biography.*

In the history of this State [Virginia] are recognized the names of distinguished

* From Thacker's Biography: Medical Biography; or Memoirs of eminent Physicians, who have flourished in America. Published 1826.

medical men among the earliest colonists. "In 1608, being the year after the planting of the colony of Virginia at James Town, the arrival of Walter Russel, doctor of physic, is mentioned by the colonists; and he is afterwards spoken of as accompanying Capt. Smith on a voyage of discovery, from James Town to the Chesapeake, and up the Potomac to the Falls; and also, of having rendered surgical aid to Captain Smith, in the case of an accident which happened to him on this occasion. Some islands, which we discovered in the Chesapeake during the voyage, were called Russel's Islands, says Captain Smith, in honor of Dr. Russel. Anthony Bagnal, surgeon, is also mentioned by Captain Smith, as accompanying him on a similar voyage, made the same year from James Town to Nansamond, the place where Norfolk is now situated. Drs. Russel and Bagnall, therefore, were probably the first physicians who came over to the colony of Virginia; but whether they remained in the country or soon returned to Europe, we have no account, but it is probable that their residence in America was only temporary; for, in 1609, when Captain Smith was badly wounded by the explosion of gunpowder, he says there was neither chirurgeon nor chirurgery at the port and he was compelled to return to Europe for the recovery of his health. In 1611, Dr. Bohun is mentioned, being about to leave the colony of Virginia and to take ship with Lord Delaware for the West Indies. But no particular account is given of either of these physicians." (John Pott, Kelly's Encl. II, 283.)

John Mitchell, M. D., a distinguished physician and botanist, came from England and settled in Virginia about 1700. He wrote an interesting and original essay on the causes of the different colors of people of different climates, which was published in the Philosophical Transactions. He was also the author of several valuable productions, which will be particularized in his biography in this volume. Dr. John Claton, an eminent botanist and physician, came to Virginia in 1705; as a practical botanist he was probably not inferior to anyone of the age, and his practical observations gave him a respectable rank among the learned naturalists of that period. Mark Catesby, F. R. S., though not a physician, may be noticed as a very eminent naturalist. He was born in England, 1679, and came to Virginia in 1712, and in 1722 removed to South Carolina. He spent nearly his whole life in the cultivation of natural science. In 1748 he published a natural history of Carolina, Florida and the Bahama Islands, containing numerous plates. Dr. John Tennent, a respectable physician of Port Royal, Virginia, who brought into view the virtues of the Seneca snake root, published in 1736 at Williamsburgh an essay on pleurisy, in which he treats of the Seneca as an efficient remedy in the cure of this disease. Dr. Tennent, it is believed, was a family connection of the late celebrated Dr. Richard Mead, of London. He held a medical correspondence with Dr. Mead for many years, and it was to him that he first communicated his account of the Seneca. Dr. George Greham, a respectable physician of Virginia, emigrated to this country in the early part of the last century. He was a native of the north of England, and was educated at Edinburgh. When he came over to this country he settled at Dumfries, in Virginia, where he enjoyed an extensive practice for many years and sustained a high reputation. Dr. Currie, of Richmond, practiced through his life with great reputation. He seemed to possess, intuitively, the faculty of distinguishing the character of disease, and of discovering the remedy. He received his medical education at the University of Edinburgh. Dr. Siccary, a practitioner of medicine, was, it is believed, a Portuguese Jew. It is said by Mr. Jefferson, that we are indebted to him for the introduction of that admirable vegetable, the tomato. He was of opinion that a person who should eat a sufficient abundance of these apples, would never die. Whether he followed his own prescription, is not known: but he certainly attained to a very old age, and particularly for the climate in which he lived. The tomato is raised in abundance in Virginia and the adjoining states and is regarded as a great luxury, and by some is considered a preservative against bilious diseases. Dr. Andrew Robertson was a native of Scotland, and received his medical education at the Edinburgh University. He first served as a military surgeon in the British army in Flanders, and came to America with Braddock's army in 1775. He remained in the country, and settled in Virginia, where he acquired a high reputation, and for many years enjoyed an extensive practice. He was particularly distinguished for his charity and attention to the indigent

sick. He made several valuable medical communications, which were published in the "London Medical Inquires and Observations". He died in 1795.

Arthur Lee, M. D., was a native of Virginia, and brother to Richard Henry Lee, the celebrated patriot of the revolution. Dr. Lee received his classical education at Edinburgh, and afterwards studied medicine in that university. As soon as he was graduated, he returned to his native state and settled at Williamsburg, where he practiced medicine for several years: but afterwards abandoned the profession, went to England, and commenced the study of the law in the Temple. He soon entered into political life, and rendered important service to his country during the revolutionary war. He died in Virginia, in 1792. Hugh Mercer, M. D., a general of the revolutionary war, was a distinguished physician, who, like Warren, fell in the defence of the liberties of his country. He was a native of Scotland, and educated at Edinburgh. He early emigrated to Virginia and settled at Fredericksburg, where he practiced medicine for several years with great reputation. During the revolution, he zealously engaged in the support of the liberties of his adopted country, and fell in the battle of Princeton in 1777. James McLurg, M. D., was a native of Scotland and was educated at Edinburgh. He was graduated in medicine about 1771, and defended an experimental thesis on the bile. He settled at Williamsburg, and was by common consent placed at the head of the profession. Dr. William Baynham was long considered as the most eminent surgeon in the southern states, and was particularly distinguished for his accurate knowledge of anatomy. He died in 1814. Walter Jones, M. D., one of the most eminent physicians in our country, was born in Virginia and received his medical education at Edinburgh where he was graduated about the year 1770. He practiced in Virginia and sustained through life the highest standing both as a scholar and physician. Dr. James Craik, a respectable Scotch physician, was educated at Edinburgh, came over to this country with Braddock's army in 1755, and served as surgeon in General Braddock's campaign, after which he setttled in Virginia. He sustained an important office in the medical department during the whole of the war of independence, and enjoyed the personal friendship and confidence of Washington, and attended that illustrious chief in his last illness. He died at Alexandria in 1814, at the age of 84 years. Dr. Dick was also one of the attending physicians of Washington, but we have no information respecting his life and character.

The Medical School of the Valley of Virginia was established at Winchester in 1826. Professors were:

John G. Cooke, M. D., Professor of the Theory and Practice of Physic and Obstetrics;

Phillip Smith, Professor of Materia Medica;

H. H. McGuire, M. D., Professor of Anatomy and Physiology;

A. F. Magill, M. D., Professor of Surgery and Chemistry.

(To be continued.)

News Notes

All America Conference on Venereal Diseases

The first of a series of regional health conferences authorized by the International Health Conference in Cannes is to be held in Washington, December 6-11. It will be devoted to a consideration of venereal diseases which, according to conservative estimates, constitute one of the world's most terrible plagues. The conference is being organized under the joint auspices of the U. S. Interdepartmental Social Hygiene Board, the U. S. Public Health Service, the American Red Cross and the American Social Hygiene Association. Prof. William H. Welch, of Johns Hopkins, has consented to serve as president, and already assurances have been received that some of the foremost physicians and sociologists will participate. Prominent health officers and sociologists from all parts of North and South America will attend.

The conference will review past experiences and existing knowledge as to the causes, treatment and prevention of venereal diseases, and will formulate recommendations relating to a practicable three year program for each of the North and South American countries participating. In addition it will make suggestions for putting such programs into effect.

In speaking of the proposed conference, Surgeon General Hugh S. Cumming, of the U. S. Public Health Service, said: "The United States is in the front rank of the countries which have organized against the Great Red Plague, and a consideration of the various measures which have proved of value in dif-

ferent communities will undoubtedly contribute much to further progress in the countries represented at the conference. More than any other important communicable disease, the spread of the Great Red Plague is inextricably bound up in a mass of social, economic, educational and recreational problems. The success thus far attending the campaign against the venereal diseases is due largely to the fact that this interrelation has been recognized and that the campaign has enlisted the co-operation not only of physicians and sanitarians, but of sociologists, judges, probation officers, educators, the clergy and good citizens generally."

This Conference immediately follows the Institute on Venereal Disease Control and Social Hygiene to be conducted in Washington, November 22 to December 4, inclusive. There are no membership dues or fees whatever.

For special information, reservation of rooms, etc., write Executive Secretary, All-America Conference on Venereal Diseases, 411 Eighteenth Street, Northwest, Washington, D. C.

The Shenandoah Medical Association

Will meet in Harrisonburg, Va., Tuesday, December 7, 1920, at 2 P. M. Papers will be read by several invited guests and the organization will be completed. All physicians in Shenandoah Valley are invited to attend.

Tests Made to Determine Mentality of Convicts.

Under the newly inaugurated policy of the Prison Board of Virginia, a test was recently made of fifty white male inmates at the State Penitentiary. Of those examined, fifteen were found to be feeble-minded and eleven "border line" cases. Twenty were normal and four were "above normal mentally. On the whole the educational record was low, although four were college men (two being college graduates); all but eight never finished the graded schools, while the majority had received very little education.

Under this new system, it is planned in time to remove from the penitentiary such of its inmates as rightfully belong in hospitals for the insane and feeble-minded. An examination is to be made of all convicts to determine medical, occupational, intellectual and educational qualifications, with a view to taking steps to improve the condition of convicts.

Two Hospitals Open In Richmond.

Dooley Hospital was formally opened in this city on October 29, at which time 34 children patients were transferred to it from Memorial Hospital. It has accommodations for 50 patients and was constructed especially for infectious and contagious diseases, but has been equipped as a children's hospital to temporarily relieve the congestion at Memorial Hospital, until the children's hospital can be erected.

St. Philip's Hospital, also of Richmond, was opened November 1. This is for the exclusive use of colored people and has a staff of colored nurses. Thirty-two patients were transferred to this hospital from Memorial Hospital on the opening day.

Both hospitals are to be operated under the auspices of the Medical College of Virginia.

Dr. A. M. Brent,

Heathsville, Va., was recently operated on at a Richmond hospital.

Dr. T. E. Armstrong,

Formerly of South Boston, Va., who recently received his discharge from service in the U. S. Naval Reserve Force, has located in Hopewell, Va., where he has accepted the position as chief surgeon to the Tubize Artificial Silk Company of America.

Married—

Dr. Basil Bradbury Jones, formerly of Danville, Va., but now of Richmond, and Miss Marion Elma Williamson, Danville, November 11. Dr. Jones is a member of the class of '17, Medical College of Virginia, and served his internship at Massachusetts General Hospital, Boston.

Dr. St. Clair Darden, formerly of this State, but now of South Bend, Ind., and Miss Ruth Milton, Richmond, Va., October 12.

Dr. Henry Augustine Latane, Alexandria, Va., and Miss Polly Graham, New York, September, 22.

The American College of Surgeons,

At its annual meeting in Montreal, during October, elected the following officers: President, Dr. John B. Deaver, Philadelphia; vice-presidents, Drs. Harvey G. Mudd, St. Louis, and Charles E. Sawyer, Marion, Ohio. Dr. F. H. Martin, Chicago, was re-elected secretary.

Dr. C. S. Maxwell,

Of Beaufort, N. C., was elected president of

the Carteret County (N. C.) Medical Society at a recent meeting.

Children's Hospital to be Erected at St. Mihiel.

In memory of America's first great battle effort in the World War, the junior section of the American Red Cross, cooperating with the French Government, plans the erection and operation of a modern hospital for children at St. Mihiel France.

Dr. Clifton M. Miller,

Richmond, Va., has, by unanimous vote, been granted a certificate of the American Board of Ophthalmic Examinations. The purpose of this Board is ultimately to advance the standards of this branch of medicine by later having a board pass on those to practice ophthalmology.

Birth Statistics, 1919.

The Census Bureau's summary of birth statistics shows that in the birth registration area of the United States, exclusive of Rhode Island which failed to send in transcripts of birth certificates, 1,365,585 infants were born alive in 1919. The total number of deaths in the same area was 791,732, the births exceeding the deaths by 72.5 per cent. The birth registration area was established in 1915 and now comprises about 58 per cent. of the estimated population of the United States.

The number of births for the year 1919 compared with 1918 shows a decrease of 7 per cent. in the registration area, each state showing a decrease. This is in marked contrast to previous years as the number of births had increased from year to year.

The infant mortality rate (number of deaths of infants under 1 year of age per 1,000 born alive) is 87 in 1919 and is the lowest infant mortality rate on record in the birth registration area.

Public Health Service Takes Over Army Hospitals.

Two army hospitals, one in North Carolina and the other in New York harbor, have recently been taken over by the U. S. Public Health Service.

The O'Reilly Hospital at Oteen, N. C., eight miles from Asheville, will be continued as a tuberculosis hospital with about 1,000 beds. Its location is beautiful and the institution is admirably adapted to the treatment of tuberculous disease. Two of the wards will be remodeled and some additional buildings will be erected for the use of the staff, especially the married staff, for whom no accommodations now exist.

The hospital in New York, variously known as the Hoff General Hospital and the U. S. Debarkation Hospital, is at Fox Hills, about ten minutes' walk from the New York City ferry station at Stapleton, Staten Island. It will be continued as a general hospital with a capacity of about 500 beds. By reason of its proximity to New York City this hospital has available the best consultation facilities in the country.

Leper Home Purchased by Government.

The Louisiana Leper Home has been purchased by the U. S. Government. The home will be under the charge of Dr. O. E. Denning and will be able to care for 500 patients.

Dr. W. S. Rankin,

Of Raleigh, secretary of the North Carolina State Board of Health, will by invitation deliver the Lamar lectures in Johns Hopkins Hospital, early in the coming year.

New State Health Commissioner in West Virginia.

Dr. Richard T. Davis, of Charleston, one of the early graduates of the University College of Medicine, Richmond, has been appointed State Health Commissioner of West Virginia, to succeed Dr. Samuel L. Jepson, of Charleston, whose term of office has expired.

Drs. E. W. and J. W. Robertson,

Of Onancock, Va., accompanied by some of their family, early in October took a motor trip which included the Valley of Virginia and several northern places of interest.

Dr. J. L. Decormis,

Of Accomac, Virginia, moved into his new home the first of October.

Dr. H. M. Miles,

Formerly of Wise, Va., is now located at Norton, Va., where he will limit his practice to diseases of the eye, ear, nose and throat.

Officers in Alumni Association.

Drs. W. B. Thornhill, Lynchburg, and Geo. T. Harris, Madison Heights, are members of the executive board of the Lynchburg, Va., chapter of the Richmond University (formerly

Richmond College) Alumni Association. Dr. Elisha Barksdale, of Lynchburg, is also a member of the Association.

Lee Highway.

Plans for the promotion of a great national highway, to be known as the Lee Highway, in memory of Gen. Robt. E. Lee, have been drawn up by the Lee Highway Association, of which Dr. S. M. Johnson, of Roanoke, Va., is general director. The original plans of the organization contemplated a highway along the Appalachian Valley, between the Blue Ridge, Alleghany and Cumberland mountain ranges. This was to begin at the Gettysburg National Park, on the Lincoln Highway, and was to run by Winchester, Staunton, Lexington, Natural Bridge, Roanoke, Bristol, Knoxville, Chickamaugua National Park at Chattanooga, and thence to Birmingham and New Orleans. The ultimate plan of the Association is to have the road extend from New York to New Orleans, and thence to San Francisco, thus making it a southern counterpart of the Lincoln Highway in the north.

Dr. Charles T. McClintock,

A member of the Medical Society of Virginia who has for sometime past made his home in Asheville, N. C., has moved to Sarasota, Florida.

Dr. A. F. Bagby,

Formerly of Petersburg, Va., after a course of study in New York, has located in Richmond with offices at 301 East Franklin Street.

Doctors Needed for Civil Service Positions.

The U. S. Civil Service Commission, Washington, D. C., announces open competitive examinations for the followng positions:—

Anesthetist in Freedmen's Hospital, Washington, a hospital for colored patients, receipt of applications to close December 7;

Physician for Panama Canal Service, for which position examinations will be held December 15, 1920, and Janary 19 and March 9, 1921;

Medical interne for St. Elizabeth's Hospital, Washington; for this position applications will be rated as received until March 1, 1921.

For detailed information as to any of these positions, apply to the Civil Service Commission without delay.

T-B Christmas Seals.

Nine hundred million Christmas seals have been printed and distributed throughout the United States—or approximately nine seals for every inhabitant of the United States. The sale of the seals will extend from November 25 to December 31. The proceeds will be used for the support of the national, state and local anti-tuberculosis work in the country in the way of financing of public health nurses, the establishment of dispensaries and for the prevention and cure of the disease.

Virginia's quota of seals is 10,000,000. Our State Tuberculosis Association's work is financed entirely by the sale of Christmas Seals. In view of the good work being done in our midst, we feel sure each of our readers will buy his proportion.

Dr. Emily Runyon

Has returned to her apartment at Gresham Court, this city, after spending the late summer season in Connecticut.

Dr. and Mrs. F. J. Wright,

Petersburg, Va., have been recent visitors at the home of Dr. and Mrs. O. H. Whitlock, Tobaccoville, Va.

Danger in Horse-Hair Shaving Brushes.

Surgeon-General Cumming, of the United States Public Health Service, has just issued a fresh warning against the use of horse-hair shaving brushes, to which not a few cases of anthrax have been traced. He states that the service has made every effort possible, under existing laws and regulations, to prevent the occurrence of anthrax due to infected shaving brushes but, in spite of its efforts, anthrax cases occur and will continue to occur unless the public ceases to buy and use horse-hair brushes for shaving.

Experts seem agreed that shaving-brush anthrax is contracted only when the shaving brush is made of horse-hair; and Congress at the next session will be asked to prohibit the use of horse hair for that purpose. It is doubtful, however, if any effective measures can be taken by health officials to curtail the use of the horse-hair shaving brushes now in trade channels, some of which are presumably infected, except a direct warning to the public not to buy or use such brushes.

Nurses Needed By Public Health Service.

The U. S. Public Health Service needs hundreds of graduate nurses for its general hospital work but also and particularly for the care of former soldiers suffering from nervous and mental disorders. It accordingly purposes to

establish a training school for nursing in neuro-psychiatric diseases in its special hospital (No. 49) on Grays Ferry Road, near Philadelphia, where nurses with general training may take a special course in this class of work. This hospital has a capacity of 240 patients and will afford exceptional opportunities for instruction in the most modern treatment.

An appeal is made to nurses to come forward for this work. The hospitals now operated by the U. S. Public Health Service are already 150 nurses short; and the service faces the necessity of opening several new hospitals with an inadequate force. Applications should be made to the Surgeon General, U. S. Public Health Service, Washington, D. C.

The Virginia Tuberculosis Association,

At its annual meeting in October, re-elected Capt. W. W. Baker, of Chesterfield County, president, and Dr. Roy K. Flannagan, Richmond, secretary. The constitution was amended to greatly increase the number of members of the board of directors. Among the physicians named as directors are: Drs. Chas. R. Grandy, Norfolk; William F. Drewry, Petersburg; E. C. Levy and Ennion G. Williams, Richmond; B. B. Bagby, West Point, and many State health officers.

Dr. R. E. Booker,

Lottsburg, Va., recently enjoyed a trip which included Baltimore, Md., Richmond and Luray, Va.

Another Private Hospital in Richmond.

Dr. William B. Hopkins has sold to Dr. W. Wallace Gill one-half interest in the property at the southwest corner of Fifth and Franklin Streets, known as 421 East Franklin Street. It is understood that these two doctors will convert the building into a private hospital.

Norfolk Has Enviable Record.

The U. S. Census Bureau's weekly health index for the first week in October gives the death rate for cities of 100,000 or greater population and shows Norfolk, Va., to have the best record in the country. Cities of the first class had an average death rate of 11.1; Norfolk's rate was only 5.4. Akron, O., had second place with a rate of 7.3. The worst record was made by Fall River, Mass., in which the rate was 20.8. While weekly reports fluctuate rather widely and can not be said to be absolute indices of conditions, this very low rate is certainly worthy of mention.

Dr. Philip W. Boyd,

Winchester, Va., has been a recent visitor at the home of his brother in Chicago, Ill.

Dr. and Mrs. Blanton L. Hillsman

Have returned to their home in this city, after a short visit to relatives in Powhatan County, Va.

Dr. J. Thomson Booth

And family, of Ashland, Va., have been recent visitors at the home of Dr. Booth's father, in Williamsburg, Va.

Dr. Mary Evelyn Brydon,

Director of the Bureau of Child Welfare and Public Health Nursing of the Virginia State Board of Health, attended the annual meeting of the American Child Hygiene Association, at St. Louis, October 11-13, inclusive, and talked on the subject, "Health Teachers and Health Teaching," at the Round Table Conference on Child Hygiene.

Course For Health Officers.

Johns Hopkins University, beginning November 8, was to give a six weeks' intensive course in training health officers. This is free to health officers but a fee is charged those not engaged in health work. Lectures are being given on public health law; selected topics in hygiene; principles of nutrition; immunity; principles of public health administration, etc.

Dr. C. C. Hudson,

Chief health officer of Richmond, delivered an address on "Bubonic Plague" before the Richmond Nurses' Club at their regular meeting, November 4.

Capt. C. B. Crute, M. R. C.,

Who was stationed at Ft. McPherson, Ga., for sometime, spent a two weeks' leave of absence with his family in Farmville, Va., last month, en route to his new post at Walter Reed General Hospital, Washington, D. C.

Dr. Frank S. Johns,

Of Richmond was a recent visitor at the home of his brother in Farmville, Va.

Col. W. A. Lucas, M. C.,

After a furlough spent at his old home in Pulaski, Va., left about the middle of October

for New Haven, Conn., to take up his duties with the U. S. Public Health Service.

Dr. Hunter H. McGuire,

Winchester, was one of the Virginia doctors upon whom was conferred the fellowship of the American College of Surgeons, at its recent meeting in Montreal.

Dr. S. W. Maphis,

Warrenton, Va., was a recent visitor in Richmond, having come on professional business.

Dr. and Mrs. John Dunn

Have returned to their home in this city, after a trip to Bermuda.

Large Medical Fee.

Professor Vidal, the French authority called in consultation during the illness of the King of Greece, after being decorated for his services, was paid the sum of $60,000.

Dr. A. R. Gray

Has sold his home at Palmyra, Va., and has moved his family to Wilkesboro, N. C., where he will continue the practice of his profession.

The Nobel Prizes In Medicine

Have been awarded to Prof. Jules Bordet, of Brussels, for 1919, and to Prof. August Krogh, of Copenhagen, for 1920.

The American Association of Military Roentgenologists

Was organized at the annual meeting of the American Roentgen-Ray Society in Minneapolis. Officers of the Medical Corps and Sanitary Corps engaged in Roentgen-ray work during the World War are eligible to membership. Dr. Arthur Christie, Washington, D. C., was elected president; Dr. Henry K. Pancost, Philadelphia, vice-president; and Dr. Francis Borzell, Philadelphia, secretary.

Dr. Wright Clarkson,

Formerly of Mt. Solon, Va., has received his discharge from the Medical Reserve Corps, and has located in Petersburg, Va., with offices at 214 South Sycamore Street.

Marriage Reduces Criminality.

The Social Hygiene Bulletin, quoting from a report published by the Research Division, Bureau of the Census, states that a careful and impartial study of prisoners and juvenile delinquents in the United States shows a decidedly lower proportion of offenders coming from the "married" than from other classes, which would seem to prove that marriage is a strong factor making for a law-abiding nation.

The following table shows the number of criminals per 100,000 of each class:—

Marital Condition	Males	Females
Single	2,000	199
Married	531	98
Widowed	1,037	146
Divorced	2,380	361

What Everyone Should Know About Cancer.

This is the title of the most recent publication of the American Society for the Control of Cancer and, while the physician may find much of interest scattered through its pages, it is intended primarily for the laity. The fact that in the United States one person in ten above the age of forty dies of cancer makes it evident that there is a lack of knowledge of cancer and this book of thirty pages states facts in the simplest language and seeks to impress the indications for and the necessity of consulting a physician before the disease reaches the incurable stage.

Health departments, medical organizations, and others desiring to secure the book for general distribution in quantity may order it through the American Society for the Control of Cancer, 25 West 45th Street, New York City at

5,000	copies	$175.00
1,000	"	50.00
500	"	25.00
100	"	5.00

Orders for fifty copies or less for personal distribution will be furnished by the Society, free of cost.

New Home For National Research Council.

Through the generosity of a number of friends and supporters, a site for the new building in Washington, which is to serve as a home for the National Academy of Sciences and the National Research Council, has recently been obtained. It comprises the entire block bounded by B and C, and Twenty-first and Twenty-second Streets, Northwest, and faces the Lincoln Memorial in Potomac Park. Funds for the erection of the buildings have been provided by the Carnegie Corporation of New York.

Medical Clinic In Charlotte, N. C.

Drs. Wm. Allan, John R. Ashe, R. F. Lein-

bach, Oren Moore, Alonzo Myers, John Q. Myers, C. M. Strong, and J. M. Worthington, all of Charlotte, N. C., have bought an apartment in that city, which they propose to change so as to have it adapted to medical purposes to be used as a clinic.

Dr. Rooker White,

Of Keller, Va., was a recent visitor in Norfolk, Va., having gone there on professional business.

Dr. G. R. Sledge,

Parksley, Va., was chosen president of the Community School League of that place, at the organization meeting, October 15.

First Aid on Pullmans.

The Pullman Car Service is giving the American Red Cross First Aid training to the entire force of colored maids employed on the transcontinental trains. Several women have already finished the course and carry the regulation First Aid kit as part of their equipment. This company has also arranged with the New York County Chapter of the Red Cross to give the course of training in First Aid and Home Hygiene to some hundreds of maids reporting to its New York terminal.

Dr. Dean B. Cole,

Formerly with the Virginia Tuberculosis Association, but who moved to New York City in the summer, was prevented by illness from taking part in the T-B Symposium at the Petersburg meeting of the Medical Society. He is now much improved.

Dr. and Mrs. Joseph Grice,

Portsmouth, Va., returned home early in October, after an extended western trip.

Dr. A. C. Fisher

Returned to his home at Emmerton, Va., early in October, after undergoing an operation in a Richmond hospital.

Dr. Otis Marshall,

Health officer of Culpeper, Va., recently delivered an address before the Mothers' Club of the Culpeper School, on "Health and Sanitation."

Dr. and Mrs. James A. Martin

And son, of Lumberton, N. C., recently visited relatives in this city. Dr. Martin is an alumnus of the Medical College of Virginia.

Do Not Forget the A. R. C. Roll Call.

If you have not already answered the American Red Cross Roll Call, do so now. It is about the only thing that has not been hit by "old man H. C. L.," when it comes to the individual paying for it. The work done by this organization is not confined to times of war but, like the brook, "goes on forever."

Dr. Tom A. Williams,

Who recently returned to Washington, D. C., after a trip abroad, has taken an apartment at the Parkwood, 1648 K Street.

Dr. Henry A. Christian,

Hersey professor of the theory and practice of physic at the Harvard Medical School and physician-in-chief to the Peter Bent Brigham Hospital, Boston, has resumed his duties after a leave of absence of a year, during which time he has been serving as chairman of the Division of Medical Sciences of the National Research Council, Washington, D. C.

Dr. W. D. Prince,

Stony Creek, Va., was among the speakers on November 4, at the special celebration held at that place, in honor of the initiation of Gen. George Washington in the lodge at Fredericksburg, 168 years ago.

Dr. W. F. Beckner,

Formerly of Russell County, Virginia, is now located in Huntington, W. Va., where he is associated with Dr. T. W. Moore in the practice of eye, ear, nose and throat diseases.

Dental Clinics For Children.

Henry County, Virginia, recently closed its first dental clinic for children. The county appropriated $300 and the State Board of Health appropriated a like sum to pay the salary of the dentist for three months. Each child having his teeth cleaned paid twenty-five cents for that service, and each filling cost the same. This money was used to defray other expenses of the clinic. Five hundred and twenty-one children had their teeth examined; 384 had their teeth cleaned; 737 had more or less permanent fillings inserted, and 36 had teeth temporarily filled.

The American Journal of Obstetrics and Gynecology,

Published monthly by the C. V. Mosby Company of St. Louis, made its initial appearance

in October. It has an editorial board composed of prominent specialists in these branches and and represents the American Gynecological Society, American Association of Obstetricians and Gynecologists, and the Obstetrical Societies of New York, Philadelphia, and Brooklyn. The journal contains interesting material, is nicely gotten out, and deserves a good reception.

For Sale—

Good home and unopposed busy country practice. Between Richmond and Fredericksburg. Convenient to school, churches and railroad. Collections and climate excellent. Terms reasonable and can be arranged to suit. Good reason for selling. If interested, address "Dr. J.," care this journal.—(Adv.)

A No. 1 Location

For a young physician. Nothing to sell. Address "26," care this journal.—(Adv.)

Splendid Location For A Doctor

Eight miles from city limits of Richmond, on a good road. New house; 50 acre farm. For sale or rent. Address "Owner," care this journal.—(Adv.)

Wanted To Buy—

Used Gas-Oxygen-Ether apparatus. Must be late model and in first class order. Give full particulars and lowest cash price. Address "M," care this journal.—(Adv.)

Obituary Record.

Dr. Robert Iverson Hicks,

A well known physician of Warrenton, Va., died in Washington, D. C., October 16, following an operation. He was born in Granville County, North Carolina, about 87 years ago. Upon completion of his academic education, he entered the medical department of the University of Pennsylvania, from which he received his diploma in 1856. At the outbreak of the war between the States, he entered the service as surgeon with the Twenty-third North Carolina Regiment of Infantry and after active service was made brigade surgeon. After the war, he practiced in North Carolina for a time and then moved to Fauquier County, Virginia, where he continued the practice of his profession until he retired about ten years ago.

Several children survive him.

Dr. Hicks was elected a member of the Medical Society of Virginia in 1882 and an honorary member in 1906; he was also an ex-vice-president of the Society and a member of the State Board of Medical Examiners from 1889 to 1894.

Dr. William J. Coleman,

A prominent physician of Louisa County, died at his home in Mineral, Va., October 31, after an illness of several months. Dr. Coleman was born in Spotsylvania County, Virginia, in 1856. Upon completing his academic education, he entered the Medical College of Virginia, from which he received his degree in medicine in 1879. He later took a post-graduate course in the University of the City of New York. He first practiced in Pennsylvania, later locating in Mineral, where he was engaged in active practice for a period of over thirty-five years. He joined the Medical Society of Virginia in 1879. . Dr. Coleman was active in church work, was a Mason and member of the Odd Fellows and was one of the first trustees of the Mineral district school board. His widow and several children survive him.

Dr. Isadore Dyer,

One of the South's most prominent physicians, died at his home in New Orleans, October 12. He was a native of Galveston, Texas, and about fifty-five years of age. After receiving an academc degree at Yale, he entered Tulane University of Louisiana, School of Medicine, from which he graduated in 1889. He later became dean of this school and was professor of diseases of the skin. Dr. Dyer was always active in work for the advancement of medicine and surgery in the South and was one of the organizers of the Southern Medical Association and its third president. At the time of his death he was a member and one of the vice-presidents of the Council on Medical Education of the A. M. A. and a member of the National Board of Medical Examiners. He was an ex-president of the American Association of Medical Colleges and for nearly twenty-five years, to the time of his death, was co-editor of the *New Orleans Medical and Surgical Journal.* He received special distinction through his investigations on leprosy and was one of the men instrumental in the establishment of the Louisiana Leper Home.